NORTHAMPTON URBAN SANITARY AUTHORITY.

ANNUAL REPORT

ON

THE HEALTH

OF THE

COUNTY BOROUGH of NORTHAMPTON,

For the Year ending December 31st,

1903,

BY

JAMES BEATTY, M.A., M.D., D.P.H.,

Medical Officer of Health.

NORTHAMPTON:
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To the Mayor, Aldermen, and Councillors, of the
County Borough of Northampton.

GENTLEMEN,

I have pleasure in submitting to you my first Annual Report on the health of the Borough, which deals with the year 1903.

The Report contains the vital statistics of the year, the statistics of the infectious diseases which occurred during the year, the work of the Borough Hospital, and an account of the Sanitary administration carried out under my supervision.

The following are special features of this report :—

- Statistics for both Wards and Civil Parishes throughout ; to make the facts clearer two maps have been included. In addition, each ward has been treated as a town and its statistics given so far as obtainable
- Calculation of the population.
- The falling birth-rate.
- The infant mortality rate.
- The notification of phthisis, results of investigations.
- Hospital accommodation for consumptives.
- Smallpox.
- Smallpox and tramps.
- Charts showing graphically the weekly occurrence of cases of the main infectious diseases.
- The epidemic of scarlet fever.
- Hospital isolation of scarlet fever cases.
- Diarrhœa and infant feeding.
- Disinfection of convalescent patients before their discharge from hospital.
- Bacteriological examinations.
- Special reports by Sanitary Inspectors.
- Bakehouses. Report by Mr. White.
- Milk supplies.

I am indebted to Dr. Cogan's reports for many of the figures given for the last ten years.

I desire to thank you for the courtesy you have shown me, and the attention you have paid to my suggestions during the year.

I am, Gentlemen,
Yours obediently,
JAMES BEATTY.
Medical Officer of Health.

Public Health Office,
20, Guildhall Road,
Northampton.

April 30th, 1904.

CHIEF FIGURES, 1903.

Estimated Population	89,960
Area in Acres	3,469
Inhabited Houses (census 1901)	17,602
Density of Population	25·7 persons per acre. 4·94 persons in each house.
Rateable Value	£362,632 4s. 0d.

BIRTHS.

Males.	Females.	Total	Birth-rate.
1120	1074	2194	24·4

DEATHS.

Males.	Females.	Total.	Death-rate.
654	565	1219.	13·5.

Zymotic Death-rate	1·3
Infant Mortality Rate	137·2
Death-rate from Pulmonary Phthisis	1·26
Death-rate from Tubercular Diseases	0·47

DEATHS IN THE QUARTERS.

	1901.	1902.	1903.
First Quarter	290	347	312
Second Quarter	275	333	299
Third Quarter	345	283	264
Fourth Quarter	306	331	344

POPULATION.

The following figures have been obtained from the printed census returns:—

Civil Parish.		Census, 1891.	Census, 1901.	Area in Acres.	Area in Acres, exclusive of water.
St. Giles'		20202	25443	779	773
St. Sepulchre's		19300	17419	272	271
St. Andrew's		10625	9485	89	89
All Saints'		9133	7403	125	121
St. Peter's		1752	1414	46	43
Kingsthorpe		7636	14099	1020	1013
St. James'	Dallington	1979	4566	185	184
	Duston ...	2174	2553	214	213
Far Cotton		2182	4086	382	370
Abington		92	553	357	355
Total		75075	87021	3469	3432

The number of persons per acre therefore is as follows:—

Civil Parish.	1891.	1901.
St. Giles'	26·13	32·91
St. Sepulchre's	71·21	64·28
St. Andrew's	119·38	106·57
All Saints'	75·48	61·18
St. Peter's	40·74	32·88
Kingsthorpe	7·54	13·92
Dallington St. James'	10·75	24·81
Duston St. James'	10·21	11·99
Far Cotton	5·90	11·04
Abington	0·26	1·56
County Borough	21·88	25·36

The density of the population in the older parts of the Borough diminished during the decennium 1891-1901.

It is unfortunate that the basis on which the Registrar-general acts in enumerating the population of a borough is the division into Civil Parishes. These have ceased to form natural divisions in Northampton, as the town has been built without reference to their boundaries. On the other hand the Wards into which the town is divided do correspond to natural divisions, and, in addition, the inhabitants of a borough in their annual exercise of the municipal franchise become fairly well acquainted with the boundaries and character of the Ward in which they live. In forming Wards an attempt has evidently been made to secure the division of the Borough into approximately equal populations, a state of affairs which is much more favourable for computation and for the inferences to be deduced therefrom than the exceedingly unequal populations which appear in the preceding tables. I shall therefore, in this Report, devote my attention almost entirely to the Wards, and in future Reports it is my intention to drop the Civil Parishes altogether, and in the necessary tables to give only the Wards. In order that this Report may be a proper continuation of previous Reports on the health of the Borough, I have this year given the figures both for the Civil Parishes and the Wards, and that the comparison may be clearer I have included two maps, one showing the Parishes and the other the Wards. It is to be noted, however, that the figures given for the St. Giles' district in the tables at the end are the figures not for the Civil Parish of St Giles, but for the registration district of St. Giles, a district which includes the Parishes of St. Giles, St. Sepulchre, St. Andrew, St. Peter, and Abington.

To compare the populations of the Civil Parishes and of the Wards the following table has been given, the figures being taken from the Census returns. The Registrar-general has, in the last Census report, given a place to the Wards but has not given their respective areas. As even the populations of the Wards were not given in the 1891 Census it is impossible to describe the progress or retrogression of each Ward during the decennium.

Civil Parish.	Population, 1901.	Ward.	Population, 1901.
St. Giles'	25443	St. Michael	13734
St. Sepulchre's ...	17419	Castle	11185
St. Andrew's	9485	St. Crispin	11153
All Saints'	7403	South	7886
St. Peter's	1414	North	13781
Kingsthorpe	14099	Kingsthorpe	8979
Dallington St. James'	4566	St. James	7119
Duston St. James' ...	2553		
Far Cotton	4086	Far Cotton	4086
Abington	553	St. Edmund	9098
Total	87021	Total	87021

It will be observed that the Parish and the Ward of Far Cotton are identical, that the Ward of St. James is identical with the Parishes of Dallington St. James and of Duston St. James taken together, but that the Ward of Kingsthorpe differs greatly from the Parish of Kingsthorpe. The difference in the case of Kingsthorpe is due to the fact that the Parish of Kingsthorpe includes the population between Semilong and St. Andrew's Roads which in forming the Wards has been taken from Kingsthorpe and given to the North Ward.

ESTIMATED POPULATION IN 1903.—The general method of estimating the population of a town in a given year is that used by the Registrar-general. This assumes that the rate of increase since the last census is the same as was the rate of increase during the ten years between the last census and that immediately preceding it.

Calculated on this basis the population in the middle of 1903 was 89,960.

It is obvious that such a method involves the assumption that the town is progressing at an even pace; this may or may not be true, and therefore it is important to obtain a check on these figures. The check I have obtained for them is derived from the lists of voters in the respective Wards kept by the Town Clerk to whose courtesy I am indebted for the following figures.

WARD.	Number of Voters, 1901.	Number of Voters, 1903.
St. Michael	2238	2373
Castle	1943	1840
St. Crispin	2026	2014
South	1468	1382
North	2344	2336
Kingsthorpe	1556	1735
St. James'	1189	1377
Far Cotton	755	846
St. Edmund	1635	1740
	15154	15643

The calculation of population is made from these figures in the following way. The population in 1901 (the census year) is known ; if therefore 15,154 voters represent a population of 87,021 what population do 15,643 represent ? A simple sum in proportion gives the figure 89,829. If the populations of each Ward be calculated in the same way and the figures added, the result gives a population of 89,913. In both cases the result is slightly below the figure 89,960 previously estimated, but when it is remembered that the census is taken in the spring of the year it is clear that the figures 89,929 and 89,913 represent the population for the spring of 1903, and to these certain figures must be added to ascertain the population in the middle of 1903 ; when this is done the population appears to be 90,183, and 90,280 respectively. It is clear therefore that the figure 89,960 is a conservative estimate and may be confidently accepted as approximately true.

Accepting the population in the middle of 1903 as 89,960 the following are the populations of the Wards :

St. Michael	14569
Castle	10598
St. Crispin	11092
South	7428
North	13740
Kingsthorpe	10017
St. James	8248
Far Cotton	4581
St. Edmund	9687
Total	89960

Or more comprehensively :

	POPULATION.	VOTERS.	Average Number of Persons per Voter.
St. Michael	14569	2373	6·12
Castle	10598	1840	5·75
St. Crispin	11092	2014	5·50
South	7428	1382	5·37
North	13740	2336	5·88
Kingsthorpe	10017	1735	5·77
St. James'	8248	1377	5·99
Far Cotton	4581	846	5·41
St. Edmund	9687	1740	5·56
The Borough ...	89960	15643	5·74

INHABITED HOUSES.—The following information has has been derived from the printed census returns :—

CIVIL PARISH.	Inhabited Houses.	Average number of persons living in each house.	WARD.	Inhabited Houses.	Average number of persons living in each house.
St. Giles ...	5103	4·98	St. Michael ...	2750	4·99
St. Sepulchre ..	3468	5·02	Castle	2179	5·13
St. Andrew ...	1843	5·14	St. Crispin ...	2182	5·11
All Saints ..	1484	4·98	South	1618	4·87
St. Peter ..	300	4·71	North	2733	5·04
Kingsthorpe ...	2895	4·87	Kingsthorpe ...	1886	4·76
St. James { Dallington	944	4·84	St. James' ...	1482	4·80
St. James { Duston ..	538	4·74			
Far Cotton ...	908	4·50	Far Cotton ...	908	4·50
Abington ...	119	4·66	St. Edmund ...	1864	4·88
Northampton...	17602	4·94		17602	4·94

NATURAL INCREASE OF POPULATION.—

This is the excess of the births over the deaths during the year, it does not include any statistics of migration to or from the Borough. During the year this excess was 985, while in 1902 the excess was 978.

The following table shows this increase for the ten years 1894-1903 :—

	Population.	Births.	Deaths.	Natural Increase of Population.	Natural Increase of Population per 1,000
1894	61057	1851	908	943	15·4
1895	61072	1926	913	1013	16·6
1896	61087	1799	979	820	13·4
1897	61102	1752	1042	710	11·6
1898	61117	1694	995	699	11·4
1899	61132	1671	921	750	12·3
1900	61147	1546	951	595	9·7
1901	87021	2345	1216	1129	13·0
1902	88206	2272	1294	978	11·1
1903	89960	2194	1219	985	10·9

BIRTH RATE.—The births registered during the year amounted to 2194; of these 1120 were of males and 1074 of females.

The birth rate was 24·4. This is the lowest rate yet recorded, being 1·3 lower than the birth rate of 1902 and 3·9 lower than the average birth rate of the decennium 1893—1902.

The births registered in the Registration District of St. Giles amounted to 1189, in that of All Saints, St. James, and Kingsthorpe to 876, and in Far Cotton to 129.

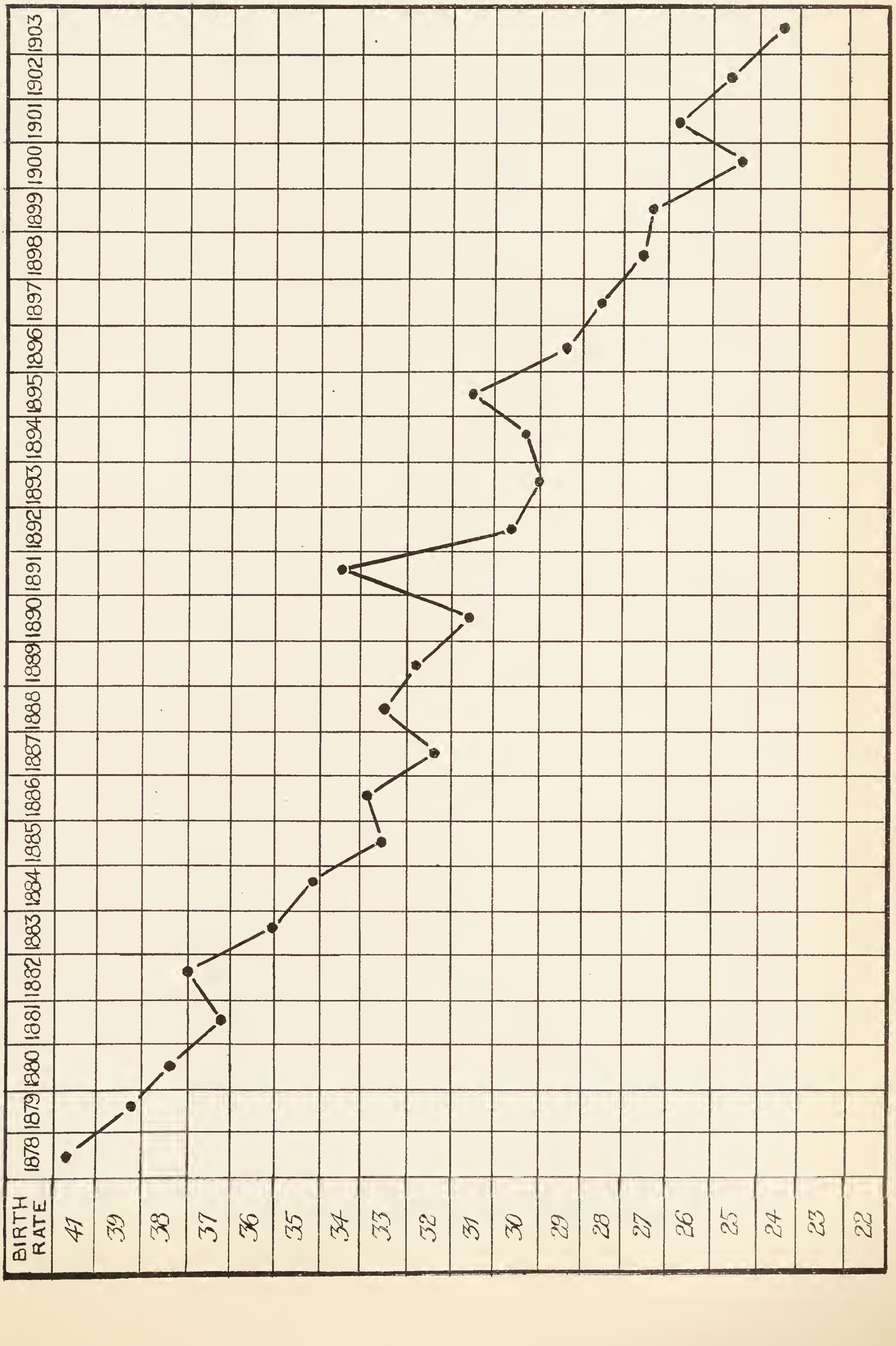
There were 43 illegitimate births registered in the St. Giles district, or 3·6% of the total births registered there. The figures for the other districts have not been supplied by the district registrars.

"The birth-rate in England and Wales in 1903 was 28·4 per 1000 of the population, which is 0·2 per 1000 below the rate in 1902, and lower than the rate in any year on record. Compared with the average in the ten years 1893—1902 the birth rate in 1903 shows a decrease of 1·0 per 1000." *(Registrar-general.)*

Annual Rate per 1,000 *of Births in the Years* 1893—1903.

	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
England and Wales	30·7	29·6	30·3	29·6	29·6	29·3	29·1	28·7	28·5	28·6	28·4
Northampton ...	30·0	30·3	31·5	29·4	28·6	27·7	27·3	25·2	26·9	25·7	24·4

I wish to draw attention to the very remarkable diminution in the birth rate in Northampton shown by the above figures and by the accompanying chart of the birth rate for the years 1878—1903. The matter is of considerable importance as a similar diminution though not so marked is found in the country as a whole. The natural increase of the population or margin between births and deaths is proportionately to the population in Northampton, an, on the whole, steadily decreasing amount, and if the tendency continues, in time the population of the town will cease to increase except for immigration into it. That the cause of this decrease is not due to any diminution in the number of marriages appears from the following figures and calculations


BIRTH RATE
41
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38
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36
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22
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1895
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1897
1898
1899
1900
1901
1902
1903

County Borough of Northampton—Census, 1891.

	All Ages.	Under 15	15—	20—	25—	35—	45—	55—	65—
Unmarried M.	18099	10639	3109	2124	1356	440	234	116	81
,, F.	18868	11086	3580	2015	1273	443	243	141	87
Married M.	10606	...	26	671	3207	2798	2021	1264	619
,, F.	10600	...	74	986	3355	2762	1960	1032	431
Widowed M.	915	...	...	...	53	102	186	214	360
,, F.	1924	...	...	7	86	103	387	509	752
Total	61012	...	...	...	...	...	...	...	...

County Borough of Northampton—Census, 1901 (Borough enlarged).

	All Ages.	Under 15	15—	20—	25—	35—	45—	55—	65—
Unmarried M.	24906	14421	3388	3094	1930	608	294	175	97
,, F.	26579	14897	3827	3354	1968	739	378	252	148
Married M.	15464	...	12	778	4515	4417	2986	1800	956
,, F.	15797	...	52	1221	5063	4330	2862	1622	646
Widowed M.	1388	...	...	...	79	145	253	308	603
,, F.	2887	...	...	12	113	293	490	783	1196
Total	87021	...	...	...	...	...	...	...	...

The first table shows the distribution of the population at the census of 1891 into unmarried, married, and widowed. The second gives the corresponding figures for 1901. The number of married couples capable of reproduction may be estimated by adding together the numbers of married women under 45. At the 1891 census the figure so obtained is 7177, while at the 1901 census the figure is 10,666. The difference however is not so great as it appears as the borough was enlarged before the 1901 census. It is therefore necessary to estimate the number of married couples capable of reproduction who were in the area at present occupied by the borough in 1891. The total population in this area in 1891 was 75,075, while the population found to possess the 7177 married couples described above was 61,012. A fair estimate therefore for the present area of the borough at that time gives the number 8831. That this is a probable estimate appears from the fact that in the Registration district of Northampton (which differs greatly from the borough in area) the total population at that time was 79,317, and the number of similarly-aged couples 9400.

The birth rate for the year 1891 was 34·5, but this was an exceptional year as a glance at the chart will show ; had the decline been uniform the birth rate at that time would have been 31·0, and this figure is the one used in order to avoid the difficulty caused by the exceptional character of the year. The total number of births among the population of 75,075 in 1891 therefore may be estimated at 2327. In 1901 the total number of births was 2345 or practically the same number as in 1891. The number of married couples capable of reproduction had however risen from 8831 to 10,666. On further calculation it will be found that where 100 families produced on the average 26 children in 1891, 100 families of similar age produced in 1901 only 22 children. The great cause therefore of the fall in the birth rate is not diminution in the marriage rate but diminution in the fertility of marriage. What the causes, and what the consequences of this striking fact may be I do not propose to discuss, but the fact should be noted.

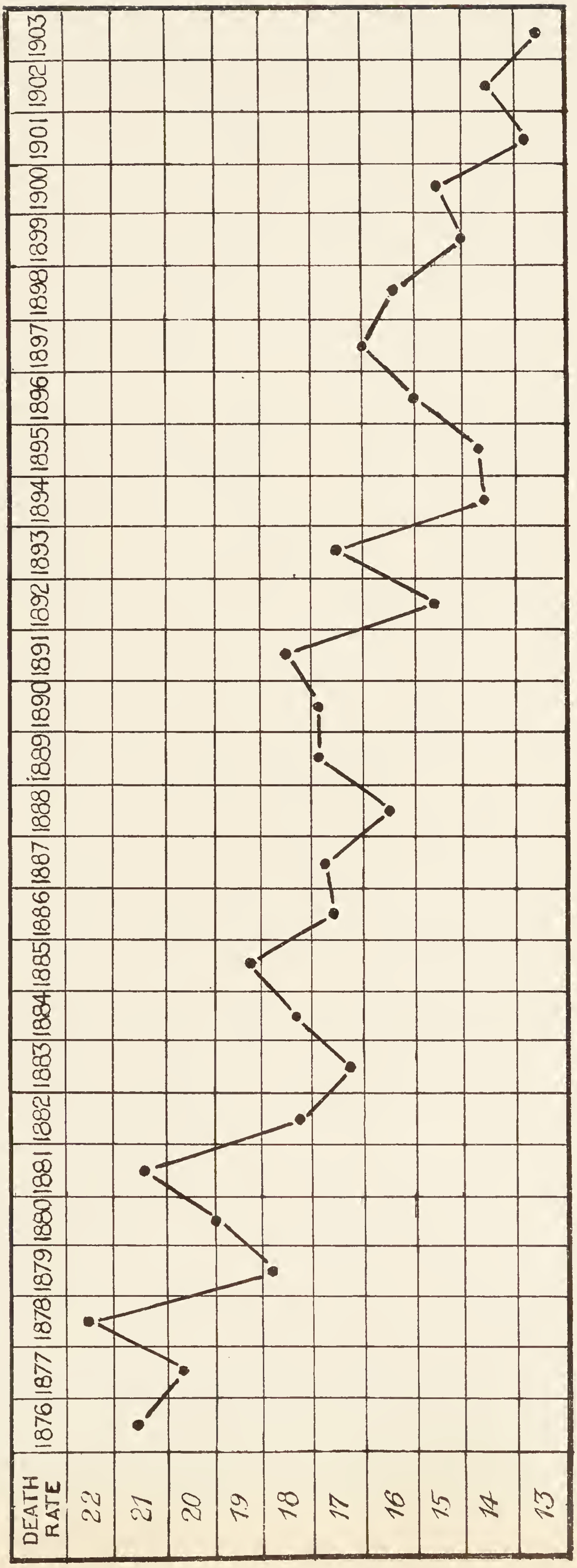
DEATH RATE.—The chart accompanying shows that the condition of the town in this particular makes satisfactory progress. This is remarkable as during the year Northampton has been suffering from an epidemic of scarlet fever.

The number of deaths which occurred during the year was 1219. This figure is obtained by subtracting from the total number reported 88 deaths of non-residents, and adding 10 of patients belonging to the district who died in the Borough Hospital. Of the 1219 deaths recorded 654 were of males and 565 of females.

The death rate was 13·5 per 1000 ; this is less by 1·2 than the death rate of 1902 and 2·1 below the average annual rate for the years 1893—1902. The rate therefore for 1903 is the lowest on record, but it should be remembered that it is strictly only comparable with the rates of the years 1901 and 1902, for the addition of the outlying districts has had, owing to their low mortality in comparison with the old borough, a favourable influence on the death rate.

Number of deaths and death-rates of the various districts.

CIVIL PARISH.	Deaths.	Death-rate.
St. Giles' (Registration District)	760	14·2
All Saints'	123	14·6
Kingsthorpe	194	12·6
St. James'	92	11·2
Far Cotton	50	10·9


DEATH RATE
22
21
20
19
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17
16
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14
13
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1877
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1879
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1881
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1897
1898
1899
1900
1901
1902
1903

These figures have not been corrected by the distribution of the deaths in the General Hospital and the Workhouse to the districts from which the patients came. The following figures for the Wards have been so corrected :- –

WARD.	Deaths.	Death-rate.
St. Michael	157	10·78
Castle	163	15·38
St. Crispin	146	13·16
South	138	18·58
North	212	15·43
Kingsthorpe	127	12·68
St. James'	95	11.52
Far Cotton	55	12·01
St. Edmund	126	13·01
Borough	1219	13·5

In both cases the deaths in the Borough Hospital have been distributed to the district from which the patients came.

"The death-rate in England and Wales in 1903 was 15·4 per 1,000, which is the lowest rate on record; compared with the average rate in the ten years 1893-1902,the death-rate in 1903 shows a decrease of 2·2 per 1,000."

Registrar-general.

Annual death-rate per 1,000 *from all causes during the year* 1903.

England and Wales	15·4
76 Great Towns	16·3
103 Smaller Towns	14·6
England and Wales, less the 179 towns ...	14·8

CORRECTED DEATH-RATE.—In order to make the death-rate of a town strictly comparable with that of England and Wales a certain correction has to be made. It has been found that in towns the population contains more young people than similar sized populations taken at random from the country as a whole, the difference being still greater if the towns be compared with the rural districts. To get over this difficulty, the Registrar-general has published a series of factors, one for each town, based on the last census. The factor for a town when multiplied into the death-rate of that town found as described above gives the corrected death-rate which is the death-rate that the town would have had if its age and sex distribution had been the same as in the country generally. The factor for Northampton is 1·0376. This when multiplied into the death-rate given above shows that the corrected death-rate is 13·7, an insignificant difference.

Uncertified deaths and deaths certified by the Coroner.

Registration Districts.	Certified by Coroner.	Uncertified.	Total.
St. Giles'	29	12	41
All Saints'	5	7	12
Kingsthorpe	9	4	13
St. James'	2	2	4
Far Cotton	4	—	4
Total	49	25	74

Of the total deaths the uncertified deaths were 2·05 %.

Percentage of deaths uncertified.

1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
4·1	Not Recorded.	3·1	2·6	3·1	3·2	3·2	2·54	1·46	2·05.

INFANT MORTALITY-RATE.—This expression means the rate of deaths among children under twelve months per 1,000 births. During the year 301 deaths were registered among these infants, and as there were 2,194 births the rate is 137·2. This rate is higher by 4·8 than the rate in 1902. The deaths during that year also numbered 301 but as there were fewer births in 1903 the rate has gone up.

" The rate of mortality among infants under one year of age to 1,000 registered births was 132, which with the single exception of a rate of 130 per 1,000 births in 1881, is the lowest rate on record, and is 22 per 1,000 below the mean for the ten years 1893-1902."—*(England and Wales, Registrar-general).*

It should be noted that the rate 137·2 is a low rate for Northampton, as it is lower than that of any year except the years 1883, 1894, and 1902.

There are two questions which press for consideration here; first, why is the infant mortality rate so high, and second, why has it fallen this year and last year.

The first of these is the more important and I shall take it first. To assist in the elucidation of this question I have prepared two tables which are here given; one showing the most usual causes of death among infants during the last ten years, and the other a complete list of the causes of death among infants during 1903, showing the dates in months after birth at which the deaths took place—in the case of the first month showing also the dates in weeks.

It will be observed that apart from minor differences the tables for each year correspond with those of the other years. In 1901 and 1902 the figures are not completely given but there can be little doubt that had they been obtained they would have corresponded with the general rule. Enteritis appears to have increased in the later years but the difference is chiefly apparent not real, as it is only in these later years that a clear distinction has been drawn between diarrhoea and enteritis; in the earlier years most of the enteritis deaths were not distinguished from deaths from diarrhoea. It may therefore be accepted that conclusions drawn from the statistics of 1903 which are given in detail will be true broadly speaking of former years, if they are not pressed too closely.

Before studying these figures it is well that it should be kept in mind that both extremes of life show excessive mortality, in the old because vitality is dying and in infants because vitality is not thoroughly established. The two periods of life may therefore be fairly compared and a great mortality may fairly be expected among infants on this account.

Assuming the age distribution of the population to be the same as in 1901; the following table shows the populations in 1903 at the various ages mentioned and the death-rate of each class. It ought to be noted however that the infant mortality rate is calculated on the number of births 2,194 and not on the calculated number of infants *viz.* 2116.

	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903
Marasmus, Debility, and Atrophy ...	55	79	65	61	70	54	48	?	63	55
Convulsions	37	31	35	33	21	30	15	?	?	29
Bronchitis and Pneumonia	38	33	41	54	26	39	45	30	51	56
Whooping Cough...	16	4	5	30	10	7	7	19	12	14
Measles	4	...	18	1	15	1	5	1	10	4
Premature Birth	43	33	33	49	47	34	25	53	40	52
Diarrhœa	14	58	27	36	55	51	28	65	26	24
Enteritis and Gastritis	9	7	8	16	3	...	...	20	20	23
All other causes	36	36	39	43	60	37	51	147	79	44
TOTAL	252	281	271	323	307	253	224	335	301	301
TOTAL BIRTHS	1851	1926	1799	1752	1694	1671	1546	2345	2272	2194
Infant Mortality rate	136·1	145·8	150·6	184·3	181·2	151·4	144·8	142·4	132·4	137·2

Table showing the Infant Mortality Rates for the years 1878—1903, *and the Birth-rates for the same years*

Year.	Birth-rate per 1,000 of the Population.	Deaths of Infants per 1,000 Births.
1878	41·3	188·4
1879	39·2	139·7
1880	38·6	149·6
1881	37·2	150·3
1882	38·0	161·8
1883	36·0	132·2
1884	35·2	186·3
1885	33·6	155·1
1886	33·9	153·5
1887	32·4	174·8
1888	33·5	146·3
1889	32·9	176·4
1890	31·7	174·7
1891	34·5	164·2
1892	30·6	145·4
1893	30·0	173·1
1894	30·3	136·1
1895	31·5	145·8
1896	29·4	150·6
1897	28·6	184·3
1898	27·7	181·2
1899	27·3	151·4
1900	25·2	144·8
1901	26·9	142·4
1902	25·7	132·4
1903	24·4	137·2

	DISEASE.	1 and under 8 days	8 and under 15 dys	15 and under 22 dys	22 and under 1 mon.	1 and under 2 mon.	2 and under 3 mon.	3 and under 4 mon.	4 and under 5 mon.	5 and under 6 mon.	6 and under 7 mon.	7 and under 8 mon.	8 and under 9 mon.	9 and under 10 months.	10 and under 11 months.	11 and under 12 months.	Total
1.	Marasmus	1	1	3	3	7	8	5	3	4	4	...	3	1	1	1	45
2.	Atrophy	...	...	2	1	1	...	...	...	2	...	...	...	...	...	...	6
3.	Malnutrition	1	...	...	...	1	...	...	...	1	...	...	...	1	...	...	4
4.	Convulsions	2	3	3	1	2	...	2	...	3	3	1	5	1	...	3	29
5.	Pneumonia	...	...	...	1	3	3	5	...	4	2	...	3	4	4	3	32
6.	Whooping-cough	...	...	...	...	1	1	...	3	...	4	1	1	1	1	1	14
7.	Bronchitis	...	...	1	1	5	3	1	1	2	2	2	2	...	2	2	24
8.	Measles	...	...	...	...	...	1	...	...	...	...	1	...	1	1	...	4
9.	Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
10.	Membranous Croup	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
11.	Croup	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
12.	Influenza	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
13.	Meningitis	...	...	...	...	...	2	...	1	1	...	2	1	...	...	1	8
14.	General Tuberculosis	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
15.	Tubercular Enteritis	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	2
16.	Tabes Mesenterica	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	2
17.	Nephritis	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
18.	Lymphadenoma	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
19.	Accident—Overlaying	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
20.	Murdered	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
21.	Premature Birth	38	2	5	2	3	2	...	...	...	...	...	...	...	...	...	52
22.	Imperfect Circulation	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
23.	Congenital Debility...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
24.	Cardiac Weakness	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	2
25.	Congenital Malformed Heart ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
26.	Pulmonary Collapse	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
27.	Spina Bifida...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
28.	Malformation of Mouth	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
29.	Deficient Vitality	4	...	1	...	...	1	...	...	...	...	...	...	...	...	...	6
30.	Enteritis	...	...	...	...	4	2	5	1	1	3	...	1	1	2	...	20
31.	Diarrhœa	...	...	...	...	4	3	2	4	5	3	1	...	...	1	1	24
32.	Acute Intestinal Obstruction ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
33.	Gastric Catarrh or Gastro Enteritis	...	1	1	1	...	...	...	...	...	...	...	...	...	...	...	3
34.	Acute Jaundice	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	3
		58	9	18	10	31	28	22	15	27	22	8	16	12	13	12	301

	Estimated Poplation, 1903.	Death-Rate.
Under one year	2116 (births 2194)	137·2
1 and under five... ...	8328	16·7
5 and under 15	19861	2·8
15 and under 25 ...	18248	3·3
25 and under 65 ...	37629	9·5
65 and over	3778	80·7
Total	89960	13·5

It appears from this table that the extremes of life are analogous in their excessive rates of mortality. Turning now to the figures of 1903, it will at once appear that in the cases of diseases 21 to 29 the infant may be considered not viable, not capable of continued life, owing to the unfortunate accident of premature birth or some radical defect of constitution.

Next, a great number of cases died under the age of one month. It may fairly be assumed that before this age the infant is in a state so little resistant to disease that if attacked by disease it will readily succumb, this appears clearly from the great mortality in the first week.

Diseases 9 to 12 are the specific fevers ; from these the mortality is low and not more, indeed it is less than would naturally be expected, for infants being one class of the population specific fevers will naturally take a certain toll from them, as they do from other classes of the population.

The same is true of the miscellaneous group, 17 to 20, and also of 32. Nos. 33 and 34 have few cases to their credit and those under the age of one month. The case is different with the group, 13 to 16, the tuberculosis group. It is true that the meningitis named is not described as a rule as tuberculous in character in the death returns, but meningitis in children may be considered in the vast majority of cases as tuberculous and I have considered it so in classifying the diseases in the tables at the end.

In the tuberculosis group the mortality is somewhat excessive compared with the rest of the population. The cause is doubtful but may be considered as due to tuberculous milk or else to such things as "comforters." These last drop from the child's mouth on to the floor and are often put back in its mouth without the least attempt at cleansing. In a house where there is a consumptive patient of careless habits and where therefore the dust contains tubercle bacilli a source of infection is obvious.

The mortality though in excess from this cause is not so greatly in excess as to constitute it a serious cause of infantile mortality.

The remaining diseases are the diseases par excellence of infants. These fall into three groups.

1.	Diseases connected chiefly with food	Nos. 1, 2, 3, 30, 31.
2.	Diseases of the lungs	Nos. 5, 6, 7, 8.
3.	Undefined	No. 4.

It may seem remarkable that I should class measles and whooping cough, well known specific diseases, with lung troubles, but it is well known that these diseases are chiefly fatal from their tendency to lung complications.

I have described convulsions as the undefined class, for a convulsion is a symptom of a disease not a disease in itself and may be due to any cause from teething or indigestion to severe and profound nervous disease.

Summarising, therefore, the causes of death may be divided into unavoidable diseases, diseases more or less avoidable, and a doubtful class.

DISEASES UNAVOIDABLE UNDER PRESENT CONDITIONS.

Developmental diseases (Nos. 21 to 29)	71
Specific fevers	4
The tuberculosis group (though these are in excess of what might be expected)	13
Miscellaneous (Nos. 17, 18, 19, 20, 32)	5
Deaths under 1 month not included in developmental diseases are to be reckoned here	30
Total ...	123

DISEASES MORE OR LESS AVOIDABLE.

Diseases probably connected more or less directly with feeding (Nos. 1, 2, 3, 30, 31) excluding those under one month	87
Diseases of the lungs (Nos. 5, 6, 7, 8) excluding those under one month	71
Doubtful diseases (No. 4) excluding those under one month	20
Total ...	178

The great mortality from lung diseases may be paralleled by the similar condition in the aged, but, nevertheless, it seems clear that there is some neglect of their children by parents in this particular and that young and delicate infants are carelessly exposed to wind and rain without sufficient protection from the cold. Possibly also the child's cradle is often put in a draughty position in the house.

There remains the great mortality which is probably due to improper feeding, amounting to 29% of the whole or to nearly 40 of the total mortality of 137·2. This is in many cases certainly due to improper management of artificial feeding, and is probably often due to want of cleanliness of the bottle used. The type of bottle to use, the method of preparing the milk for the infant's use, and the amount to give, are all matters in which many mothers in Northampton need instruction; this instruction I hope they will obtain partly through the medium of the Health Visitor and partly by the help of printed instructions on Infant Feeding. I have prepared a leaflet on this subject and hope shortly to secure its distribution.

The cause of the lower mortality rate in infants this year and last year does not call for much comment. In the first place the slackening of the rate is not great as the change since 1899 has not been great. The two previous years were evidently exceptional years, while the years 1894, 1895, and 1896, did not greatly differ from more recent years. The causes are mainly the influence of the new districts in producing a generally better death rate, and to a less extent the wetness of the last two summers. Diarrhœa was unmistakably less prevalent in 1902 and 1903 than previously and this is probably to be accounted for by the flushing of courts, alleys, streets, and sewers by the constant rainfall. The great foe of diarrhœa is cleanliness and this has been in some degree secured by nature's scouring processes.

The above discussion of an important subject only treats the matter from the point of view of what can be learnt from the death returns. The Health Visitor regularly investigates cases of death among infants, ascertains so far as possible the cause in each case, and makes notes on the infant's food and its surroundings. These when collated at the end of the year are certain to provide valuable information and will give a more secure basis for action than we at present possess. I give a copy of the form used by her in these investigations.

Informant No.

DEATH OF INFANT.

Certified cause of death
Date of death Date of investigation
Name Age Sex
Address
Medical Attendant
How long at present address
Other occupants of the house giving ages Adults Children
Duration of illness
Notes on illness
Physique of infant
Food. Breast-fed. How long after birth Wholly ? Partly ?
Bottle-fed How long Wholly ? Partly ?
Preparation of milk for bottle
Bottle, type used
How cleaned
Errors of diet elicited
Similar illness among other occupants.
(Dates of illnesses and ages of patients.)
Similar illness among neighbours
Milk supply, if infant was not entirely breast-fed
Was the milk boiled
Where was it stored
To what is the illness ascribed by informant
Condition of house
No. of living rooms bedrooms back to back through
Cleanliness of walls floors ceilings
stairs cellar
Dampness ventilation

Lighting
Yard size pavement (with defects, if any)
W.C. condition distance from house
Provided with flushing cistern or not
State of drainage
Animals kept, with any remarks on illness among these
Stable or slaughter-house near
Flies
Other points noted
Instructions given as to infant feeding (if desirable)
Remarks
Signature

The relation of the milk supply to infant feeding will be discussed later in this Report.

Table showing Comparative Mortality of Northampton with 19 *other Towns.*

TOWN.	1903.				Infant Mortality. Deaths under 1 year per 1,000 Births.	Average Death-rate, 10 years, 1893-1902.
	Population.	Birth-rate.	Death-rate.	Zymotic Death-rate.		
Tottenham ...	117797	29·5	10·7	1·4	123·9	14·1
Preston	114404	30·18	17·08	3·11	163	20·81
Birkenhead ...	133343	31·02	17·0	2·2	127	18·6
Plymouth ...	112022	25·42	16·57	1·04	144·7	19·11
East Ham ...	110451	34·4	12·16	1·5	113	—
Southampton ...	110120	28·8	13·9	1·31	114	16·8
Halifax	106800	21·0	14·9	0·66	124·1	17·5
South Shields ...	105325	34·5	17·2	1·02	132	20·0
Wolverhampton ..	96994	30·4	15·2	2·00	141	20·58
Stockport	95709	31·57	20·08	2·52	183·9	21·78
Swansea	95624	31·7	18·4	2·3	164	16·37
Huddersfield ...	94973	23·79	16·73	0·84	120	17·51
Northampton	**89960**	**24·4**	**13·5**	**1·3**	**137·2**	**15·6**
St. Helens... ...	87385	39·14	17·5	1·72	138	20·3
Rochdale	84824	24·4	17·1	1·38	138	18·8
York	80186	29·1	16·2	2·0	154	18·3
Aston Manor ...	79417	28·7	14·8	2·3	159	16·0
Hornsey	78386	19·91	7·51	0·61	83	9·20
Coventry	72684	29·7	16·6	2·0	114	16·6
Merthyr Tydfil ...	71651	38·6	18·9	2·6	153	23·4

CANCER AND OTHER MALIGNANT DISEASES.—The number of deaths registered was 86, and the rate of mortality 0·96. The following table gives the figures for the years since 1894.

Year.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
Number of Cases	47	51	35	40	32	52	44	52	76	86
Rate	0·77	0·83	0·57	0·65	0·52	0·85	0·72	0·60	0·86	0·96

The rate last year was therefore the highest on record, but not by much. Cancer shows a tendency to increase in all urban populations, but it is not possible to say from the above table that Northampton agrees with other towns in this respect.

TUBERCULAR DISEASES.—The tables for the year show that there were 114 deaths from pulmonary phthisis, adding to the death rate to the extent of 1·26.

The deaths from tubercular diseases other than pulmonary phthisis, amounted to 42, the death rate from this cause, being 0·47 per 1000 of the population.

The death rate from phthisis was lower than that of any year, since 1876, except the years 1884, 1895, and 1901.

The death rate from other tubercular diseases was the same as in 1902. It appears higher than in many of the previous years, but the increase is only apparent, for the principle has been adopted in this year's report, and in that of last year of classing all deaths from meningitis in children under 12 years of age as tubercular. There can be no doubt that the vast majority of cases of meningitis in children are of tubercular origin and the principle is therefore a safe one.

Annual death-rates per 1000 *from phthisis pulmonalis and other tubercular diseases in the* 28 *years,* 1876—1903.

		Phthisis.		Other Tubercular Diseases.
1876	...	2·06	...	0·57
1877	...	2·00	...	0·49
1878	...	2·13	...	0·63
1879	...	1·92	...	0·56
1880	...	1·58	...	0·33
1881	...	1·96	...	0·26
1882	...	1·89	...	0·26
1883	...	1·92	...	0·18
1884	...	1·16	...	0 19
1885	...	1·69	...	0·15
1886	...	1·70	...	0·30
1887	...	1·53	...	0·53
1888	...	1·51	...	0·47
1889	...	1·72	...	0·36
1890	...	1·56	...	0·33
1891	...	1·83	...	0·40
1892	...	1·63	...	0·40
1893	...	1·68	...	0·34
1894	...	1·52	...	0·14
1895	...	1·17	...	0·26
1896	...	1·32	...	0·11
1897	...	1·32	...	0·39
1898	...	1·88	...	0·45
1899	...	1·43	...	0·29
1900	...	1·42	...	0·29
1901	...	1·21	...	0·16
1902	...	1·42	...	0·47
1903	...	1·26	...	0·47

Five-year Averages.

	Phthisis.	Other Tubercular Diseases.
1876—1880	1·93	0·51
1881—1885	1·81	0·20
1886—1890	1·60	0·39
1891—1895	1·56	0·30
1896—1900	1·45	0·30
1901—1903 (three years)	1·30	0·37

The following tables show the death rates in various districts :

CIVIL PARISH.	PHTHISIS DEATH-RATE.
St. Giles (Registration District)	1·51
All Saints	1·07
Kingsthorpe	0·84
St. James	1·21
Far Cotton	0·44

WARD.	
St. Michael	1·30
Castle	1·60
St. Crispin	1·35
South	1·48
North	1·24
Kingsthorpe	0·90
St. James	1·21
Far Cotton	0.44
St. Edmund	1·44
Borough	1·26

NOTE.—The rates in the wards have been calculated after distributing to their proper wards the cases who died in the General Hospital and the Workhouse. The rates for the Civil Parishes have been calculated without such distribution.

The following list shows the occupations followed by those who died of phthisis, during the year. The number of deaths is too small to draw any conclusions with regard to the danger of particular occupations, as on the whole the greater the mortality the larger the group in which it takes place. When the figures have been obtained for a series of years, it will be possible to derive information from these lists. Nevertheless the high mortality proportionately among finishers should be noted.

Occupational Mortality—Phthisis.

MALES.	Under 1 year.	1 to 5.	5 to 15.	15 to 25.	25 to 60	60 and upwards.	Total at all Ages.		Total employed in Borough at Census. 1901.
Finishers	...	...	...	1	8	...	9	29	11821
Clickers	...	...	...	1	4	...	5		
Rivetters	...	...	...	1	2	...	3		
Lasters	...	...	...	...	2	1	3		
Rough-stuff Men	...	...	...	1	1	...	2		
Sole Layers	...	...	..	...	1	...	1		
Currier	...	...	...	1	...	...	1		
Shoe Workers, not specified ...	...	...	...	3	2	...	5		
Shoe Mannfacturer	...	...	...	...	1	...	1		?
Sadler	...	...	...	1	...	...	1		36
Tanner's Labourer	...	...	...	...	1	...	1		106 Workers in Skin exclusive of Curriers.
Leather Merchant	...	...	...	...	1	...	1		106
Beer Retailer	...	...	...	...	3	...	3		238
Hotel Porter	...	...	...	1	...	...	1		63
Carpenters...	...	...	...	1	1	...	2		573
Labourer	...	...	...	...	3	...	3		435
Blacksmith	...	...	...	...	1	...	1		145
Foreman, Railway Carriage Department	...	...	...	...	...	1	1		693 Employes on Railways.
Army Pensioner	...	...	...	...	1	...	1		?
Draper	...	...	...	...	1	...	1		211
Soldier	...	...	...	...	1	...	1		271
Commercial Traveller	...	...	...	...	1	...	1		?
Greengrocer	...	...	...	...	1	...	1		?
Ironmonger's Assistant	...	...	...	1	...	...	1		?

Painter and Decorator	...	...	...	1	...	...	1	539
Mineral Water Bottler	...	...	...	1	...	...	1	?
School Teacher	...	...	...	...	1	...	1	171
Picture-Frame Maker	...	...	...	...	1	...	1	?
Higgler	...	...	...	...	1	...	1	86, Hawkers.
Plumber	...	...	...	...	1	...	1	148
Gardener's Labourer	...	...	...	..	1	...	1	347, Gardeners.
Clerks	...	...	...	1	3	...	4	752
Coachman	...	...	...	...	...	1	1	?
No occupation given	...	...	1	...	2	...	3	About 1,200.
	...	...	1	15	46	3	65	
FEMALES.								
Confectioner's Manager	...	...	...	...	1	...	1	?
Knot Tier	...	...	...	1	...	...	1	5109 Shoe Workers.
Shoe Fitters	...	...	...	2	...	...	2	
Waitress	...	...	...	1	...	...	1	135
Glass and China Dealer	...	...	...	...	1	...	1	?
Milliner	...	...	...	1	...	...	1	921 Milliners and Dressmakers.
Shoe Machinist	...	...	...	1	...	...	1	5109 Shoe Workers.
Dressmaker	...	...	...	1	...	...	1	921 Including Milliners.
	...	...	...	7	2	...	9	
Females of no occupation, married women and children	...	...	6	8	25	1	40	About 25000
TOTAL	...	...	7	30	73	4	114	

PREVENTIVE MEASURES.—A system of voluntary notification of cases of phthisis was put into operation in Northampton on October 1st, 1900.

It is regrettable that the medical practitioners of Northampton have not availed themselves to a greater extent of the opportunities afforded to them by the Local Authority to help in the war against tuberculosis. That a much greater number of cases might have been notified appears from the following table :—

	Cases Notified.	Deaths from Phthisis Registered.
1900 ... ... (Borough enlarged Nov. 1900.)	52 (3 months) ...	87 (whole year)
1901	44 ...	104
1902	34 ...	126
1903	55 ...	114

It follows that not even one half of the cases who die in a year are notified, though about these there can be no doubt, and a medical man is certainly in attendance.

In order to make an effort to alter this, at the end of August I wrote a letter to the medical practitioners of the town, pointing out the desirability of notification.

The letter was as follows :—

PUBLIC HEALTH OFFICE,
20, Guildhall Road,
Northampton.
August 29th, 1903.

Dear Sir,

As it appears from the small number of cases notified in comparison with the number who die yearly, that some of the Medical Practioners of Northampton are either not aware or have forgotten that the voluntary notification of cases of Phthisis was introduced here three years ago, will you allow me to draw your attention to the fact that the fees for notifying these cases are the same as those paid for any of the diseases coming under the "Infectious Diseases (Notification) Act." I would urge you also to remember the great importance that an acquaintance with these cases has to the Health Authorities in their endeavours to combat the disease.

As I trust you will aid in this matter I send you a specimen of the cards used for notifying cases of Phthisis, and I should be glad if these were exclusively used, as their use simplifies the clerical work necessary in this office.

Any medical man desiring a stock of these cards can have them on application.

Yours sincerely,
Medical Officer of Health.

I am glad to say that this letter has been followed by an increased number of notifications as during the last four months of the year 29 cases were notified, although only 26 had been notified during the first eight months.

The importance of the matter becomes clearer when it is remembered that the proportion of living consumptives in any one year to those who die during the same period is between three and four to one.

The main cause of the disinclination to notify cases of phthisis is the obvious one that the medical attendant fears that his patient may dispense with his services. He dreads to offend by bringing the patient into contact with the Sanitary Authority, and troubling him with the official visits which necessarily follow. He fears that the patient will leave him for another practitioner, who has the reputation of never notifying such cases. As a result, even those who notify cases tend to notify only those cases which it is no loss to lose as patients, or those who are nearly moribund. The question is a difficult one, for the medical practitioner is dependent largely on the goodwill of his patients for a living, and to me it certainly seems that the legislature should take away from a medical man this necessity of choice between the interests of his pocket and his desire to improve the public health. Compulsory notification in all cases, as in the case of the chief acute infectious diseases, would solve the difficulty, as the patient could not escape notification by leaving one practitioner for another. It is true that there is a difficulty in bringing phthisis into line with the acute infectious diseases, and, indeed, many of the requirements of the law dealing with them are not applicable to cases of phthisis. Such a difficulty could easily be got over by a special Act dealing with tuberculosis, and that it can be got over is shown by the example of Sheffield, which has succeeded in obtaining such a measure in its last local Act.

It would be of very great advantage to know where all the cases of phthisis in a town were, for though a considerable amount of good can be done by the instruction of the individual cases who are notified, any general conclusions based on an imperfect knowledge of the cases are necessarily of doubtful value, and general measures against the disease are likely to fail owing to ignorance of essential factors in the problem.

Possibly if it were understood how desirous I am that our efforts to cope with this disease should be productive of as little friction as possible, more cases might be notified. I wish to describe therefore briefly the method followed when a case is notified.

First of all the notification is handed to Miss Gough, our Health Visitor. She enters the name on a form provided for the purpose, and then visits the patient's residence. She inquires into the various points mentioned in the form a copy of which is here given, laying special stress on the character of the house, the number of its inmates, the occupation of the patient, &c., and she endeavours by enquiries into his family and personal history, into his companionships, as to disease among his workmates, &c., to elicit the cause of the disease.

Informant No.

PHTHISIS.

Date of Notification Date of Investigation
Name Age Sex
Address
Single Married Widower
Medical attendant
Duration of illness
How long at present address
Previous addresses with the period of stay in each
Other occupants of house, giving ages Adults Children
History of illnesses among dead relatives
History of illnesses among living relatives
Physique of family
Present state of patient
Previous illnesses of patient with approximate dates

Habits of patient Public house frequented
His occupation
Character of this work (dusty, damp, etc.)
Places of work, with periods of stay at each
Statements as to illness among workfellows
Illness among companions
Illness among neighbours
Milk supply
Was patient a milk drinker?
Probable cause of the disease
Disposal of sputum at present
Condition of house:
No. of living-rooms bed-rooms back to back through
Cleanliness of walls floors ceilings
stairs cellar
Dampness ventilation
Lighting
Yard size pavement (with defects, if any)
W.C. distance from house
provided with flushing cistern or not
State of drainage
Other points noted
Isolation of patient
Instructions given as to precautions
a. Personal
b. In house
Remarks

Signature

It may seem that these enquiries are rather inquisitorial but her experience is, as it was mine in Manchester, that patients become thoroughly interested in the object of the search and very willing and even eager to assist in hunting down the cause of their illness and they are glad that such a course may lead to the benefit of others. Besides investigating, the Health Visitor gives instructions on the personal precautions to be taken, on the way the house must be kept, etc., and she dwells on the paramount claims of fresh air and cleanliness. She leaves also with the patient or his friends a printed set of instructions; these instructions were given in *extenso* in last year's report, and are those which

Dr. Cogan caused to be printed and circulated. In addition any sanitary defects found are detailed to the Sanitary Inspector of the district with a view to remedy, and disinfection of the house by the staff of the Health Office is carried out after deaths, or where the circumstances clearly indicate its necessity. Such is the method and the results of the first visit, but it has been found that patients slip back into careless ways unless a certain amount of supervision is exercised, and this is maintained by monthly visits to the houses where carelessness is shown, and by three-monthly visits where the Health Visitor has reason to believe that the instructions given will be faithfully carried out.

There is nothing in all this if it be carried out tactfully, as I believe it is, to annoy the sufferers from this malady, indeed many of them rather enjoy the importance that their illness gives them. No doubt it may be objected that publicity is involved ; but the fact that the Health Visitor does not wear any kind of uniform showing her work prevents the curiosity of neighbours being aroused, and on the other hand apart from any kind of visit it is soon known to a whole street if any case of phthisis is seriously ill in it. The terrible hacking cough proclaims the disease in a way that nothing else could.

Miss Gough entered on her duties on Sept. 21st, 1903, after dealing with employees in shops, she took up this work, the investigation of phthisis, and she has furnished me with a report of which I now give the substance. I may say that this report includes a considerable body of information obtained by myself in personal investigation of many of these cases.

Number of cases notified, 54. Males 33. Females 21. Of these there have died 33, or 61·1%.

The following information has been obtained in many of the cases ; that it was not obtained in all is due to the fact that many of the cases died before the Health Visitor entered on her duties, and the enquiry form used at that time did not require information on many of the points mentioned in the later one.

Duration of illness at date of enquiry.

Under 1 year	6	cases
Over 1 year and under 2 years ...	12	,,
,, 2 ,, ,, ,, 3 ,, ...	6	,,
,, 3 ,, ,, ,, 4 ,, ...	2	,,
Over 4 years	5	,,
	31	
Particulars not ascertained... ...	23	
Total ...	54	

Phthisical Relatives.

No. of cases where there are or were such	35
,, ,, ,, without history of such ...	19

Previous Illnesses.

Influenza in 5 cases.
  In 3 cases it seemed to have started the disease.
  In 2 cases it occurred at varying intervals previously.
Bronchitis in 3 cases.
  In 1 case this occurred 1 year before health failed.
  In 2 cases it was of many years standing.
Rheumatic fever in 2 cases.
Pleurisy and Inflammation of lungs in 1 case.
Erysipelas in 1 case.
Anaemia in 1 case.
Scarlet fever in 4 cases.
Abscess and swollen glands in two cases.

No previous illness of importance had occurred in 12 cases.

Habits.

Good or temperate—29 cases.
Intemperate —2 cases.

Occupations.	No. of cases.
Finishers	5
Rivetters	3
Clickers	3
Rough-stuff Men	1
Machinist (shoe)	2
Shoe "Operatives"	2
House-work, formerly in Factories	4
House-work	10
School-work	6
Clerks	2
Painters and Decorators	2
Hatter	1
Milliner	1
Rubber Maker	1
Picture Framer	1
Newsagent	1
Railway Foreman	1
Soldier	1
Bottler	1
Moulder	1
Hotel Porter	1
Labourer	1
Tramp	1
No Occupation	2

In the 31 cases in which efforts were made to trace the source of the disease, a possible though not by any means in most cases a probable cause was found in 22 cases, while no definite cause could be assigned in 9.

Of the 22 cases 14 appeared to have associated at one time or another with consumptive relatives, while in 8 cases consumptive work-fellows, associates, or other less probable sources may have been to blame.

A number of sanitary defects were found, these were put in the hands of the sanitary inspectors and have been remedied.

Defective yard pavings	9
,, roofs	4
,, slop sink	1
,, floor	1
Bell traps	9
Filthy W.C. pans	6
Filthy House	1
Dampness	3

I think it will appear from the above account that the importance of combating the disease is fully recognised by the officers to whom the Sanitary Authority has committed this work.

Localities of Notified Cases of Phthisis.

Newcombe Road	2	Stanley Road	2
Abbey Street	1	Lincoln Road	1
Devonshire Street	1		

Salisbury Street	2	Essex Street	1
Stanley Street	1	Burleigh Road	2
Cartwright Road	1	Cecil Road	1
Balmoral Road	1	Uppingham Street	1
Adelaide Street	1	Hampton Street	1
Nazareth House	1		

Grafton Street	1	Regent Street	1
St. Mary's Street	1	Lower Cross Street	1
Tanner Street	1	Swan Street	1
Hazelwood Road	1	Towcester Road	1

Wycliffe Road	1	Ivy Road	1
Clarke Road	1	Perry Street	1
Gray Street	1	Hood Street	4
Poole Street	1	Upper Mounts	1
Overstone Road	1	Great Russell Street	1
St. Michael's Road	1	Whitworth Road	2
Melbourne Street	1	Palmerston Road	1
Workhouse	1	East Street	1
Market Street	1	Cleveland Road	2

Bouverie Street	1	South Terrace	1
South Street	1		

47 localities where Deaths have occurred from Phthisis, and where the cases were not notified.

Ambush Street	1	Argyle Street	1
Greenwood Road	1	Stanley Road	2

Bridge Street	1	Commercial Street	1
Scarletwell Street	1	Lower Cross Street	1
Regent Street	1	Mayorhold	2
Newland	1	Park Street	1
Nunn Mills	1	Tanner Row	1

Campbell Street	1	Lorne Road	2
Charles Street	1	Cranstoun Street	1
Oakley Street	1	Louise Road	1
Leicester Street	1	Gladstone Terrace	1
Grafton Street	1	Brook Street	1
Alpha Street	1	Kingsthorpe Road	1
Paradise Row	1		

Market Street	1	Portland Street	1
Melville Street	1	Upper Thrift Street	1
Denmark Road	1	Abington Avenue	1
Roe Road	1	Perry Street	1
Adams Avenue	1	Cowper Street	1
Hood Street	1	Great Russell Street	1

Milton Street	1	Kingsley Park Terrace	1
Harborough Road	1	Vicarage Lane	1

Oxford Street	1

Before leaving this part of the Report I desire to allude to the question of hospital accommodation for consumptives in Northampton. During the year I presented a report to the Sanitary Committee which was by them transmitted to the council on the question of the provision of a hospital for consumptives. It was pointed out that hospitals for consumptives may be divided into three classes, curative, educative, and isolating The Council it may be remembered were more enamoured of the virtues of a curative institution than of the others, and communications have since been entered into with the County Council on the subject. While sympathising greatly with the natural desire to cure the sick I confess it seems to me that Sanitary Authorities in the past have considered, and rightly I think, that their main duty was the prevention of disease rather than its cure, hence the number of isolation hospitals which have been built, and all the machinery of disinfection which is at work in every town of any size. On this account I wish to urge the desirability of considering the educative and isolating functions of a hospital. In an educative hospital patients are passed rapidly through, trained to live so that they themselves shall have the best chance of getting well, and so that they shall not infect others. No way can be imagined so effective in spreading the knowledge of the necessary precautions through a town. In an isolating hospital patients are treated not for cure but to protect their relatives and friends. The amount of infection which a consumptive patient in the last stages of the disease brings from his lungs is incredible to anyone who has not seen an almost microscopical particle of sputum magnified enormously under the microscope. It is under the mark to say that in some cases tubercle bacilli are daily brought up not in millions but in billions. Professor Koch has stated that "it is the microbe laden spray shed by the consumptive around him in the last stages that is by far the most deadly method of conveying the disease. Every cough, sneeze, effort at speech, or other similar breath-movement sets the terrible spray in operation." Guinea pigs which are peculiarly susceptible to the infection of tuberculosis have been brought into close association with tuberculous patients who coughed in their direction—one fourth of the guinea pigs died of tuberculosis. Of course it is possible to exaggerate the infectiousness of the disease and this is often done. Phthisis is a disease infectious certainly but of low infective power and many people escape who have been brought into the closest contact with those in the last stage of the disease, but it does seem probable that these slowly dying consumptives are the main source and fountain of the perennial stream of tuberculosis in man. If this be granted it follows that the most essential of all institutions is the institution for advanced cases.

I have no desire to underrate the value of the work done in sanatoria, but I think the history of these institutions shows, particularly when dealing with the working classes, that the improvement they produce is but temporary, and that in a number of cases they fail. As at present carried out sanatorium treatment without provision for the after life of the patients in pure air and with open air work will prove a disappointment to many who are now earnestly advocating it.

SPECIFIC FEBRILE OR ZYMOTIC DISEASES.—The diseases included in the Zymotic death-rate are : smallpox, measles, scarlet fever, diptheria, whooping cough, typhoid fever, and diarrhœa.

The number of deaths from these diseases was 120, and the death-rate 1·3 ; a figure which is 0·2 less than than that of 1902 (1·5).

The zymotic death-rate of England and Wales in 1903 was "1·46 per 1,000 living, against 1·99, 2·05, and 1 64 respectively in the three preceeding years."—*Registrar-general.*

Statistics for the years 1894-1903—*Northampton.*

	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
Zymotic Death-rate	1·4	1·5	2·7	2·7	2·2	1·5	1·6	1·9	1·5	1·3
Deaths	84	93	168	164	137	93	98	168	134	120

Zymotic Deaths in Districts.

CIVIL PARISH.	Smallpox.	Measles.	Scarlet Fever.	Diarrhoea.	Diphtheria.	Whooping Cough.	Typhoid Fever.	Total.	Death-rate.
St. Giles (Registration District) ...	...	4	16	15	6	13	5	59	1·11
All Saints'	...	...	1	4	3	10	1	19	2·26
Kingsthorpe	...	5	3	10	7	5	...	30	1·95
St. James	...	...	1	1	2	2	...	6	0·73
Far Cotton	...	1	3	...	...	2	...	6	1·31
Borough	...	10	24	30	18	32	6	120	1·33
WARDS.									
St. Michael	...	...	4	2	...	3	...	9	0·62
Castle	...	1	3	3	3	3	2	15	1·41
St. Crispin	...	2	4	1	1	3	...	11	0·99
South	...	...	...	4	3	3	2	12	1·61
North	...	2	2	13	3	7	2	29	2·11
Kingsthorpe	...	4	3	3	4	7	...	21	2·10
St. James	...	...	1	1	2	2	...	6	0·73
Far Cotton	...	1	3	...	...	2	...	6	1·31
St. Edmund	...	...	4	3	2	2	...	11	1·13
Borough	...	10	24	30	18	32	6	120	1·33

It is satisfactory to note that the zymotic death-rate in 1903 was the smallest during the ten years 1894-1903, and that since 1876 only two years, 1888, and 1892 surpass it in this respect.

NOTIFICATION OF INFECTIOUS DISEASE.

1903	Small Pox.	Typhoid Fever.	Erysipelas.	Puerperal Fever.	Diphtheria.	Scarlet Fever.	Membranous Croup.	Total
Week ending January 7	...	...	1	...	...	9	...	10
,, ,, 14	...	...	3	...	...	7	...	10
,, ,, 21	...	1	2	...	...	7	2	12
,, ,, 28	...	...	3	...	...	4	...	7
,, February 4	...	2	1	...	2	13	1	19
,, ,, 11	...	2	2	...	2	8	...	14
,, ,, 18	...	2	3	...	...	11	...	16
,, ,, 25	...	...	1	...	...	8	.	9
,, March 4	...	...	...	...	1	13	...	14
,, ,, 11	...	...	2	...	...	12	...	14
,, ,, 18	...	...	2	...	...	8	1	11
,, ,, 25	1	1	2	...	1	18	...	23
,, April 1	1	1	...	...	...	12	2	16
,, ,, 8	1	1	1	...	1	14	1	19
,, ,, 15	7	...	2	...	.	16	...	25
,, ,, 22	3	1	3	...	1	11	1	20
,, ,, 29	1	...	2	...	1	6	.	10
,, May 6	6	...	2	...	...	9	...	17
,, ,, 13	4	2	1	...	...	9	...	16
,, ,, 20	10	...	1	1	...	13	1	26
,, ,, 27	3	...	1	...	1	9	.	14
,, June 3	...	...	2	...	...	9	...	11
,, ,, 10	...	2	3	...	1	3	...	9
,, ,, 17	...	..	2	...	...	9	...	11
,, ,, 24		...	2	...	1	10	...	13
,, July 1	...	...	1	...	...	12	...	13
,, ,, 8	...	...	2	...	...	5	...	7
,, ,, 15	...	...	3	1	...	7	...	11
,, ,, 22	...	...	1	..	1	9	...	11
,, ,, 29	...	1	2	...	1	10	...	14
,, August 5	...	...	.	...	...	6	...	6
,, ,, 12	...	...	3	...	1	6	...	10
,, ,, 19	..	1	4	...	2	5	...	12
,, ,, 26	...	...	2	1	...	12	...	15
,, September 2	.	...	2	...	1	15	...	18
,, ,, 9	...	1	6		1	14	...	22
,, ,, 16	...	1	4	...	...	19	...	24
,, ,, 23	...	1	6	...	...	18	...	25
,, ,, 30	...	...	3	..	...	10	...	13
,, October 7	...	1	4	1		16	...	22
,, ,, 14	...	...	5	...	3	23	...	31
,, ,, 21	...	...	3	...	1	11	...	15
,, ,, 28	...	...	5	1	...	16	...	22
,, November 4		...	6	...	1	32	...	39
,, ,, 11	...	...	5	...	...	23		28
, ,, 18	...	2	3	...	1	25	1	32
,, ,, 25	...	2	6	...	2	14	1	25
,, December 2	...	...	3	...	...	22	...	25
,, , 9	...	...	2	...	...	21	...	23
,, ,, 16	...	...	6		...	23	...	30
,, ,, 23	...	...	7	...	...	17	...	23
,, ,, 30	...	...	...	...	...	23	1	24
1903	37	25	138	5	27	662	12	906
1902	2	63	135	4	12	161	14	391

SMALLPOX.—No case of smallpox was notified during the years 1894 to 1901 inclusive, though there had been an outbreak in 1893. In the year 1902 two cases were reported. The long immunity from the disease was then broken, but fortunately no cases developed from them. In 1903 the disease was expected to recur, for the Local Government Board figures, issued weekly to Medical Officers of Health, showed that the disease was spreading in London, and that almost every town in the Midlands was suffering from outbreaks. Northampton is fortunately situated, in that it does not lie in the direct route between London and any of the large centres of population, hence infection was likely to be brought to it only by those who were coming here with a definite purpose. The history of outbreaks in other towns has shown that tramps have played the main part in carrying the disease about, and I have no doubt that in some of the cases which occurred in Northampton where no source was traced, tramps were really to blame. Northampton, compared with some other towns, is not much troubled with this class of men, and to this chiefly I attribute the late date of the commencement of the outbreak, and the fact that when once got under fresh centres did not occur again and again.

The outbreak commenced on March 20th, by the notification of a single case ; the last case was notified on May 22nd. The total number of cases notified was 37.

A full report on the outbreak was made to the Sanitary Committee shortly after the outbreak had been got under, and I am sending a copy of this report to each member of the Council along with this general report. The special report, as will be observed, gives the method of action when a a case was notified, the method of dealing with 'contacts,' the supervision of the hospital to prevent infection spreading from it, a catalogue of the patients showing their sex, age, occupation, position as regards vaccination, dates of their illness, number of contacts, habits, possible source of their illness, and certain remarks on each case. There is then a scheme showing the genealogy of the cases. The latter part of the report deals with the question of vaccination. I have dealt fully with this matter on account of its general interest in Northampton.

The following additional facts may be of interest :—

The Smallpox Hospital, a structure of wood and corrugated iron, situated beyond Far Cotton, did not suffice to hold all the patients who needed accommodation at one time, and the Welford Road Hospital was opened for the purpose. Fortunately the outbreak ceased after only one case had been admitted to this hospital, and when the pressure on the main hospital had lessened by the discharge of patients he was transferred to it.

The nurses at the main smallpox hospital were obtained from the Nursing Institute in Langham Place, and it is but just that I should pay a tribute to their cheerfulness under the necessary restrictions imposed on them, and to their devotion to the interests of their patients. Indeed, I was afraid at one time that they would overwork and against their wishes I procured an additional nurse to help them. The patients under their rule proved cheerful and willing, and I think the faithful observance by the patients of the restrictions with which they were surrounded also merits a meed of praise. The nurses on leaving the hospital were quarantined for a fortnight at the Welford Road Hospital.

No case of illness of any kind occurred among the officials dealing with the out-break.

The Common Lodging-houses so much frequented by tramps were kept under closer observation than is usual at less dangerous periods. The inspector who has charge of this work called twice a week and sought information as to the existence of illness among the frequenters of the place; none was ever found. On two occasions I deemed it advisable to pay a surprise visit late at night after the occupants had gone to bed in order to satisfy myself that nothing was being hidden. A similar visit was paid to the Casual Ward of the Workhouse, but the zeal and energy of the officials there rendered special observation by the Health Department unnecessary. Every case of illness among casuals was at once reported to the Medical Officer, Dr. Cropley, who took all necessary measures.

The cost of the smallpox hospital during the financial year, March 1903 to March 1904 is thus given by the Borough Accountant, Mr. Hull.

	£	s.	d.
Coal, Ironmongery, etc.	28	12	1
On account of building	300	0	0
Expenses of patients and nurses	420	7	0
Wages	10	10	10
Furniture and bedding	64	8	4
Total ...	823	18	3
Less receipts	61	9	11
Total ...	£762	8	4

The receipts were charges made to the Brixworth authority and to the Guardians for the maintenance of patients sent to the hospital by them. Of the £762 8s. 4d. actually paid, it is to be noted that £300 went in payment of the building and is a payment that will disappear in another year or two from the accounts, also that the furniture and bedding were needed to fit up the hospital and remain in it for use if another outbreak should occur.

To contacts for their enforced absence from work were paid their wages, these amounted to £122 14s. 11d.

The necessary medical attendance fell to the lot of the Medical Officer of Health.

On the whole, Northampton may congratulate itself on having got cheaply out of what might have been a formidable epidemic.

VACCINATION.—I have obtained the following figures by the courtesy of Mr. Paget, the County Medical Officer of Health who has calculated them from the official figures.

The figures apply to the Northampton Union, which contained at the census somewhat over 89,000 people. This Union does not include Far Cotton with its population of over 4,000, but does include the districts of Great and Little Billing, Weston Favell, Dallington, Duston, Bugbrooke, Harpole, Kislingbury, Nether Heyford, Upper Heyford, and Upton, which contain about 6,500 people. It is plain therefore that the vast majority of the population of the Union belong to the Borough, and the figures may be accepted as practically correct for the Borough.

Table showing the percentage of children born who have not been vaccinated after deducting the children who died before being vaccinated.

1893—1897	...	83·3 %
1898	...	81·4 %
1899	...	73·5 %
1900	...	76·2 %
1901	...	66·6 %
1902	...	58·7 %

The table shows the effect of the outbreaks of smallpox in London and elsewhere during the years 1901 and 1902 in producing an increase of vaccination. Nevertheless it is clear from these figures that the inhabitants of Northampton are as a general rule strongly opposed to vaccination, and this is further proved by the fact that to May 1903, the number of vaccination exemption certificates granted under the vaccination Act of 1898 since it came into operation was 13,298. I am indebted to the Town Clerk for procuring these figures for me.

The parents of Northampton are taking a serious responsibility on themselves in refusing to have their children vaccinated. Vaccination, on the authority of practically the entire medical profession, when properly performed, and when of recent date will protect absolutely against smallpox. Instead of bringing figures from other towns or countries to prove this opinion I would ask those who read these remarks to reflect on the fact that none of these chiefly exposed to infection during the outbreak in Northampton, viz:—the nurses, inspectors, disinfectors, and myself, contracted the disease, and that all of us had been revaccinated within the last very few years. Also I would draw attention to the facts as regards vaccination obtained during the outbreak. In order that anyone might be in as good a position as myself to draw inferences I have given not merely the inferences but the actual facts themselves. I am aware that the figures are too small to prove anything, but it is surely remarkable that so far as they go they are in harmony with the views held by the medical profession.

Nevertheless the fact remains that the inhabitants of Northampton generally are opposed to the practice of vaccination, though of those members of the population who passed through the wards of the smallpox hospital as patients none seem to have retained anti-vaccination views. It becomes therefore well worth while to consider what line of action a man opposed to the vaccination of his children should advocate to prevent the disease ever attacking them. To my mind he should give up the illogical position that vaccination is useless and adopt the position that it is unnecessary. This position may be wrong, but at any rate it is a defensible position. The fact that in a town like Northampton where so many unvaccinated children exist it has been possible to overcome an outbreak will naturally strengthen such a man's contention, though against this it may be urged that it is only the children who are unprotected while the adults are still more or less protected by vaccination in early life, and that Northampton is, therefore, not a wholly unprotected community, but a community which is still partially and imperfectly protected. Nevertheless, assuming for the sake of argument that the disease can be got rid of in an unprotected community, the efforts of the logical opponent of vaccination will be directed to the prevention of the disease ever reaching his borders, for he knows that if it ever affects one of his unprotected children great disfigurement on recovery is almost certain and the risk to life is great. Besides therefore maintaining isolation hospitals and the other apparatus of disease prevention he must endeavour to prevent the disease ever entering Northampton if possible. Now the disease is introduced into towns in most cases by the agency of tramps, or at any rate of men out of employment who state that they go from town to town in search of work. The tramp genus is of little service to the state, it is a parisitic growth on the organism and should be compelled to recognise its duties to the state which in the last resort preserves its life. Among these duties may fairly be required that of producing, if possible, insusceptibility to disease, and I therefore strongly advocate the vaccination of all frequenters of common lodging houses and casual wards. It is true that such a measure would not prevent the disease spreading from abroad to a great port like Liverpool or London, but it would prevent it spreading to a comparatively isolated community like Northampton. It is much more important that this class should be vaccinated than any other class of the community for while the permanent residents in a town, no matter how poor, are exceedingly likely to seek medical attendance if attacked with illness followed by a rash, a tramp is equally likely not to seek it, and to have it forced on him by others only when he is afflicted with a severe and obvious attack. Segregation of incorrigible tramps in labour colonies is also greatly to be wished for.

MEASLES.—The total number of cases reported by the headmasters of the various schools was 482. This shows a great improvement on the figures of the previous year when the cases reached 1157.

There were 10 deaths attributable to this disease, 9 of which occurred in children under the age of five years. The death rate from this cause was 0·11 per 1000.

Table showing deaths and death-rates from measles during the last ten years.

Year.	Number of cases notified from Schools.	Deaths.	Death-rate per 1,000
1894	...	20	0·32
1895	...	1	0·02
1896	...	114	1·87
1897	...	2	0·03
1898	542	33	0·54
1899	205	1	0·02
1900	637	21	0·34
Borough Enlarged. 1901	314	5	0·05
1902	1157	43	0·48
1903	482	10	0·11

School notifications have been sent in since 1898. It will be observed that there is distinct evidence of periodicity in the above table. Measles appear to be prevalent every second year, and the case mortality seems to increase at the same time. The number of cases notified from schools is however far from representing accurately the actual number of cases that occur, so that while increased case mortality may be suspected it cannot be proved. If this periodic law really represents the facts there should be considerable mortality from measles during the year 1904.

The annexed table shows the notifications received from schools during 1903.

Monthly Notification of Measles (School) during the year 1903.

SCHOOL.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Kettering Road	...	...	8	...	2	...	..	...	...	...	...	...	10
Spring Lane	13	17	...	...	...	...	...	...	...	...	1	...	31
St. Mary's (Mounts)	...	...	...	...	19	...	...	...	...	...	...	...	19
Military Road...	...	...	...	...	2	52	...	...	...	...	...	...	54
St. Katherine's	1	...	...	...	...	...	...	...	...	...	...	...	1
The British	...	...	2	...	2	42	40	8	...	...	...	...	94
St. Sepulchre's	...	...	...	...	...	27	...	...	...	...	...	...	27
Barry Road	...	...	6	...	...	...	...	...	...	...	...	...	6
St. Paul's	...	...	...	...	15	27	5	...	...	...	...	...	47
St. James'	1	...	...	2	...	41	63	...	...	...	...	...	107
St. Matthew's	...	...	57	27	...	...	...	...	...	...	...	...	84
Far Cotton	...	...	2	...	...	...	...	...	...	..	...	...	2
	15	17	75	29	40	189	108	8	...	...	1	...	482

Note.—In the year 1902, 1157 cases of measles were notified.

Scarlet Fever Table.

Year.	Population.	Notifications.	Attack Rate per 1000.	Deaths.	Death-rate per 1000.	Case Mortality per cent.	Zymotic Death-rate per 1000.	General Death-rate per 1000.	Removed to Hospital.	Percentage removed.
1894	61057	429	7·03	7	0·11	1·6	1·4	14·9	200	44·2
1895	61072	269	4·4	9	0·15	3·3	1·5	15·0	139	51·7
1896	61087	384	6·3	11	0·18	2·6	2·7	16·1	264	68·7
1897	61102	866	14·2	41	0·67	4·7	2·7	17·0	432	49·8
1898	61117	731	11·9	15	0·24	2·0	2·2	16·2	317	43·1
1899	61132	338	5·5	11	0·18	3·2	1·5	15·0	232	68·3
1900	61147	93	1·5	3	0·05	3·2	1·6	15·5	67	72·1
1901	87021	171	1·96	3	0·03	1·7	1·9	13·9	108	63·2
1902	88206	161	1·82	3	0·03	1·9	1·5	14·7	118	73·2
1903	89960	662	7·36	24	0·27	3·6	1·3	13·5	398	60·1

The only school closed during the year was St. Matthew's school when the Infant school was closed for six weeks from March 9th and the mixed school for three weeks from March 30th. It may seem surprising that some of the schools which appear to have been largely affected during July were not closed. The reason why closure was not adopted was the near approach of the summer holidays. It is desirable to interfere with school work as little as possible, hence the holidays were used as a quarantine period for the schools. Great use is made of these school notifications for the homes of cases so notified are visited by an officer of the health department, instructions are left, and the parents are warned to keep the other children away from school. The headmasters of the various schools are warned in every case to exclude from school the brothers and sisters of affected children. By this means outbreaks in schools threatening to become epidemic have more than once been cut short during the year. The marked influence of the closure of the schools in checking an epidemic is shown by the exceedingly small number of cases reported during the later months of the year.

SCARLET FEVER.—I have unfortunately to record the existence and progress of an epidemic of this disease during the year. As is shown in the above table there were 662 cases of scarlet fever notified; this compares very unfavorably with any year of the ten 1894—1903, except the epidemic years 1897 and 1898. The increase in the population of the Borough produced by the extension in 1900 makes the comparison less unfavourable than it at first appears, for the attack rate during 1903 then turns out to be 7·36, about the same as in 1894, and slightly more than half the rate in 1897. It should however be noted that 1903 seems to have shown only one half of the epidemic for a glance at the chart shows that the number of cases notified was rising during the last few months of the year. Probably 1904 therefore will produce a considerably greater number of cases than 1903 has produced.

Age Incidence of Scarlet Fever during 1903.

Under 1 year	1 to 5	5—15	15—25	25—65
11	216	379	35	21

This table repeats the experience of former years, and it therefore follows that scarlet fever is a disease of childhood. Adults are largely insusceptible to the disease, though occasional attacks occur. Among adults it has been found that women are more susceptible than men. But though the disease is one of childhood, most of the attacks occurring under the age of ten years, it is remarkable to note that it is not to any extent a disease of infancy, apparently susceptibility increases up to the 4th or 5th year. This agrees with our constant experience in investigating cases in houses where there are children of all ages that infants largely escape, even though several of the other children are attacked. Considering that an infant is, relatively to the other children, much more closely and frequently in contact with the mother who is generally nursing the cases, this is a remarkable fact only to be explained by relative insusceptibility.

The deaths from scarlet fever during the year numbered 24, and the death rate due to scarlet fever was 0·27 per 1000 of the population. The case mortality or per-centage who died of cases attacked was 3·6. The fatality of the disease varied during the year; as is usual in epidemics it was most fatal proportionately near the start and as the number of cases increased their severity diminished. This is shown by the following table.

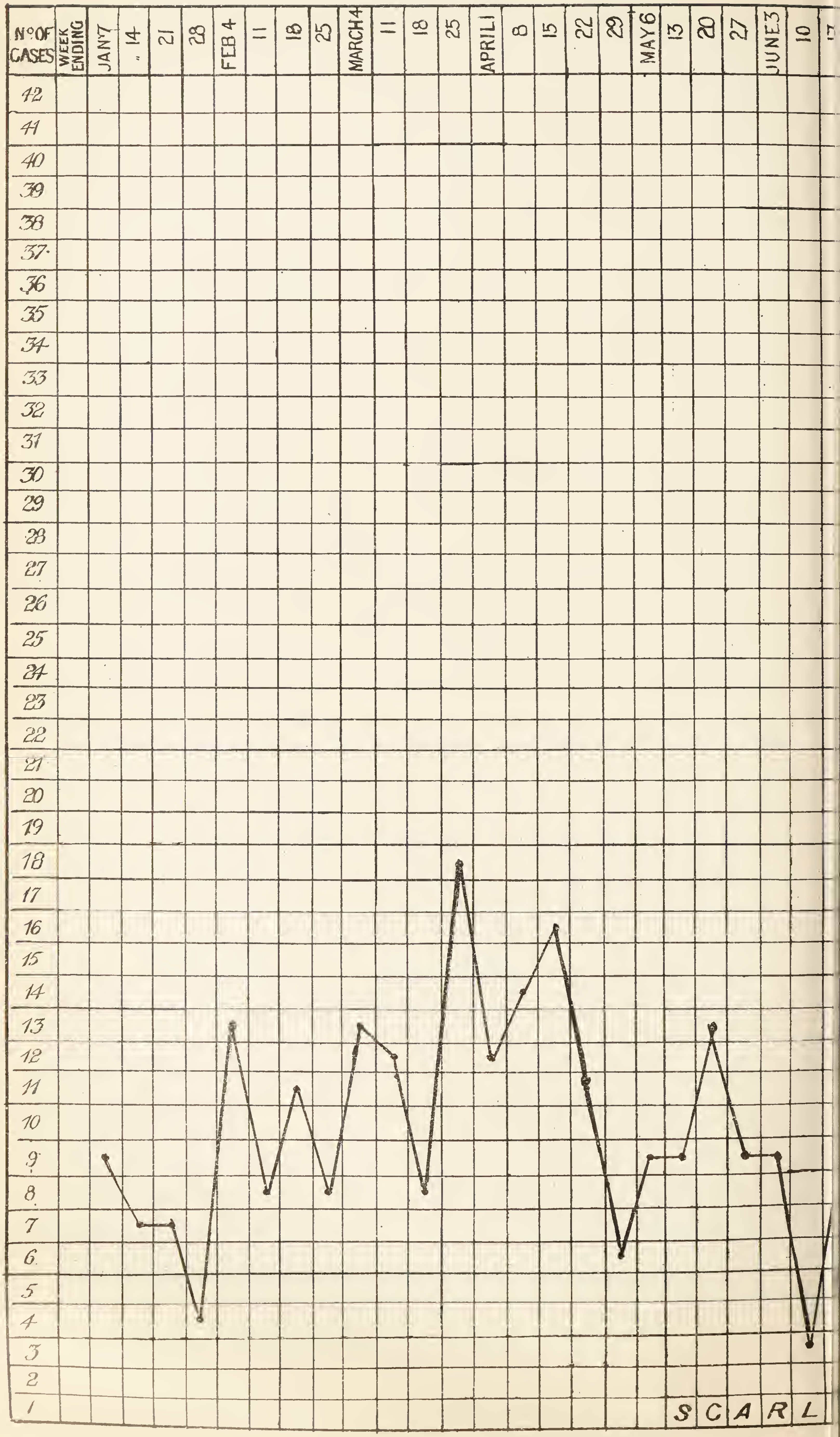
	Number of Cases.	Number of Deaths.	Case Mortality per cent.
1st quarter	129	3	2·3
2nd ,,	127	7	5·5
3rd ,,	139	6	4·3
4th ,,	267	8	2·9

Of the 662 cases reported 398 were removed to the Isolation Hospital. This is a percentage of 60·1.

During the early part of the year every encouragement was given to parents to send the affected children into the hospital, but in many cases the parents declined to do so. In estimating therefore the completeness with which the system of isolation was applied, and the success which the hospital met with in its efforts to cope with the disease, these cases must be deducted. The following figures show that during the first ten months of the year the hospital was able to receive the vast majority of those who were willing to try hospital isolation.

	Number of cases notified.	Number willing to go to hospital.	Number of deaths before removal.	Number isolated.
First ten months of 1903	474	335	5	293

There were therefore during this period only 37 cases refused admission for want of room. Since then, however, the hospital has been unable to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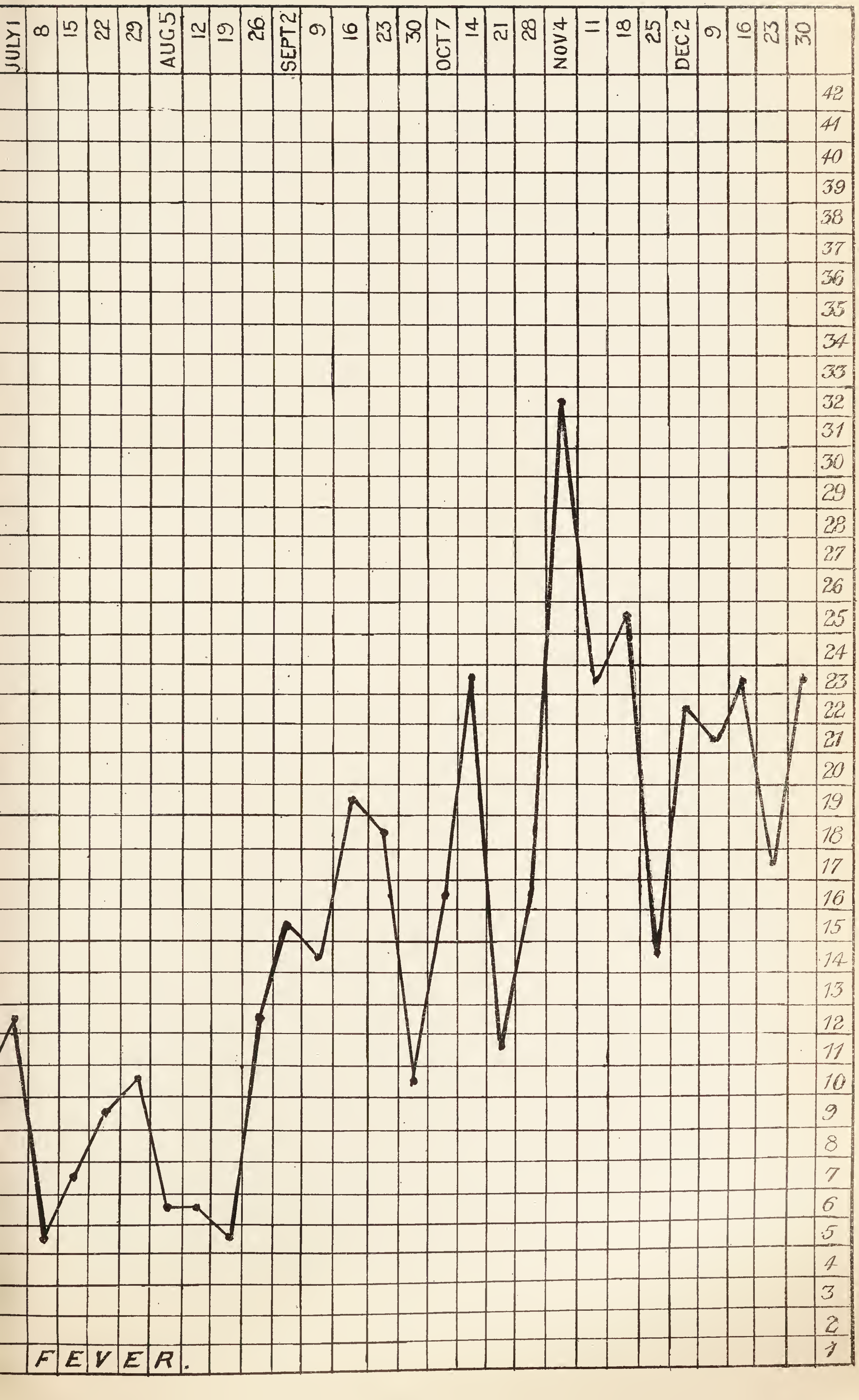
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FEVER.

cope with the increasing number of cases, and a selection has had to be made from among those desiring admission.

The principles upon which this selection has been made are as follows. Preference has been given to cases where—

1 The patient's mother was approaching a confinement; the risk to a woman after her confinement if there be scarlet fever infection about her is very great.

2 Where part of the house was a shop, a workshop, or a domestic workshop.

3 Where there were a number of children in the family of susceptible age.

4 Where isolation was difficult or impossible owing to the largeness of the family, or the small size and small number of rooms in a house.

5 Where the case occurred in an institution, *e.g.* the Workhouse, the Barracks, etc.

6 Where adults in the family worked at trades liable to spread infection, *e.g.* tailoring, millinery, laundry work, making of underclothing, etc.

7 Where the mother had to earn part or the whole of the family earnings by going out to work, thus rendering her unable to attend to the case.

The character of the epidemic has been mild. Of the numerous cases treated in hospital not one was of the malignant type, though a number of cases severe from the extensive implication of the throat occurred.

That an epidemic should occur at all is very discouraging to those responsible for carrying out preventive measures, and in particular the apparent failure of isolation to get rid of the disease before it has assumed epidemic dimensions generates a hopeless feeling which tends to culminate in the policy of *laissez faire*. So far has this gone that the whole question of the usefulness of isolation hospitals for scarlet fever is now under discussion, and some argue that they are not merely unnecessary but positively harmful, that they tend to intensify the disease in the particular case, and that they spread a more virulent type of the disease by producing return cases. The whole discussion reminds me of a pamphlet written by Florence Nightingale about 1870 to show that lying-in hospitals should be abandoned. From the point of view and the knowledge gained at that period she was undoubtedly right. The hospitals of that day were hot beds of puerperal fever and tetanus or lock-jaw, and the cause of this had not been discovered. With the discovery of the cause, and its successful eradication by antiseptic treatment the ground was cut away from under the argument of the pamphlet and now such hospitals are a great boon in the larger cities. So, I take it, it will prove to be in the case of isolation hospitals for scarlet fever. If the cause of the recurrent epidemicity of the disease can be discovered the isolation hospital will recover its credit.

Scarlatina is like smallpox essentially a disease of human intercourse, it depends probably only to an infinitesimal degree on insanitary surroundings, and just as smallpox can be overcome by rigid isolation of the cases so ought scarlet fever to be conquered. The essential difference between the diseases, from the preventive point of view, is one of diagnosis. The rash produced by smallpox is characteristic and a skilled diagnostician will seldom be deceived. Its clinical history too is strikingly definite and uniform. On the other hand the rash of scarlatina is often fleeting and where cases are mild may even not be noticed. The other symptoms have little that is characteristic about them, and in fact a decided opinion on the case may be impossible.

In case 481, a child was treated from the very commencement by a medical practitioner, only at the end of three weeks when desquamation settled the question for him, was he able to notify the case. Where even a skilled medical man may be in doubt it is little wonder that many cases are overlooked by the parents.

It has frequently been my experience throughout the year to hear of children found in the desquamating stage. When this is so pronounced as to call the attention of teachers or parents to the patients hands, the child has probably been in an infectious condition for at least three weeks. During the year 11 cases were notified in the desquamating stage. A medical practitioner had not been called in before in these cases, hence no precautions had been taken, five of these are known to have attended school between the first few days of illness and the date of notification.

But while in many cases the neglect of the parents to call in medical advice is not culpable, in many others there can be no doubt that culpable, even criminal carelessness has been shown. In several cases a definite statement has been obtained from the mother that she saw a rash at such a time, and yet she did nothing.

Such cases are liable to punishment and it is a question whether it would not be well as a example to prosecute one or two such cases. The obligation of notification it is not generally remembered lies not merely on medical men, but it also lies on the parents or guardians or relatives of the cases. Still worse is the negligence of parents sometimes shown even when they are fully aware of the nature of a child's illness. In 11 cases the affected child was found lying in the living-room by the inspector when making the usual routine call after the notification had been received from the medical attendant.

Besides these obvious causes of the spread of the disease there is another important fact to take into account. In scarlet fever as in diphtheria and typhoid fever, there are during an outbreak cases capable of spreading infection who cannot be diagnosed by any ordinary means at our command as suffering in however mild a degree. In diphtheria and typhoid however, bacteriological tests have been discovered by which such cases can be ascertained, but unfortunately no such test has yet been found for scarlet fever. How numerous such cases may be appears from the experience of Professor Koch, when fighting typhoid at a small German town. Whereas 8 cases were notified by the medical practitioners the bacteriological test systematically applied to all contacts showed that 72 persons were affected. There can be no reasonable doubt that the sore throats so often met with in other members of a household where a case of scarlet fever has occurred are specifically scarlet fever throats and capable of giving rise to obvious scarlet fever in others. There is no means as yet of proving this, and until we get such a means, real isolation of all cases of the disease cannot be attained.

Table showing the number of cases of Scarlet-fever occurring in each School during each month of the year 1903.

	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Stimpson Avenue	6	9	6	5	4	2	1	1	9	10	18	10	81
Kettering Road	7	6	6	3	0	3	0	1	6	5	5	2	44
St. James'	5	3	4	1	3	1	8	5	10	13	4	8	65
Spring Lane	2	0	2	0	0	0	0	1	7	3	2	1	18
St. Mary's (Mounts)	3	5	1	3	2	8	4	1	5	8	3	3	46
,, Clare St.	1	0	0	0	0	0	1	0	1	3	1	0	7
The British	1	1	1	1	1	0	3	2	4	4	8	1	27
Military Road...	1	2	2	1	0	2	1	0	2	4	4	6	25
Kingsthorpe	0	0	1	4	2	1	0	0	1	0	0	0	9
Barry Road	0	2	14	9	7	3	0	2	2	1	1	2	43
St. Edmund's	0	2	2	3	1	3	0	3	2	3	5	2	26
Vernon Terrace	0	1	2	1	0	1	0	1	3	6	5	7	27
St. Sepulchre's	0	1	0	0	0	0	1	1	1	1	7	20	32
St. Matthew's	0	0	1	0	0	0	2	0	2	0	0	1	6
St. Peter's	0	0	1	0	1	1	0	0	1	0	2	1	7
St. Andrew's	0	0	0	1	1	3	0	2	1	1	3	3	15
Far Cotton	0	0	0	1	3	2	2	0	0	0	0	0	8
All Saints'	0	0	0	1	1	0	0	0	0	0	1	0	3
St. Paul's	0	0	0	0	1	0	0	0	2	2	0	2	7
St. Giles'	0	0	0	0	0	0	0	0	3	0	3	4	10
Other schools	0	1	3	1	0	4	3	1	7	0	6	2	28
	26	33	46	35	27	34	26	21	69	64	78	75	534

Another cause at work is the assembling together of children in schools. In this connection I have caused the annexed table to be made out showing the occurrence of the disease in the principal elementary schools. Scarlatina is not so undoubtedly a school disease as measles, but there can be no doubt that the disease often spreads from an overlooked case at school. It is part of the price paid for education. No school however required to be closed during the year from extreme prevalence of scarlet fever among the scholars attending it.

The question of return cases must now be alluded to. The following appear to have been return cases.

No. of Case.	Return of causing case from hospital.	Illness commenced.	Days after return of causing case.
12	Dec. 31, 1902	Jan. 7, 1903	7
96 and 99	Feb. 13, 1903	Feb. 23, ,, (both)	10
152	Mar. 14, ,,	Mar. 20, ,,	6
199	Mar. 31, ,,	April 6, ,,	6
247 and 248	Apl. 21, ,,	April 26, ,, (both)	5
270	May 5, ,,	May 7, ,,	2
351	June 1, ,,	June 12, ,,	11
371	June 10, ,,	June 29, ,,	Causing case did not live in same house. 19
428	July 25, ,,	Aug. 3, ,,	8
589	Oct. 1, ,,	Oct. 6, ,,	5
767	Nov. 10, ,,	Nov. 19, ,,	9
778	Nov. 1, ,,	Nov. 22, ,,	21
864	Dec. 15 ,,	Dec. 16, ,,	1
887	Dec. 1 ,,	Dec. 22, ,,	21
899	Dec. 19 ,,	Dec. 25, ,,	6

In some of these cases no doubt the element of coincidence plays a part, especially in cases where the occurrence of the return case was delayed beyond a week. That coincidence is a real factor is shown by the fact that occasionally a fresh case of the disease has been notified from a house from which a case had been removed five or six weeks before. Had this second case been delayed for a short time till the other came back from the hospital it would have appeared a typical return case. Nevertheless I have no doubt that many of these cases are genuine return cases. Their occurrence is difficult to understand for every precaution that can be thought of is adopted in the hospital to ensure that the patients sent home shall not carry infection with them. These precautions are detailed in the section dealing with the isolation hospital. All that can be said is that they occur in every town and that the experience of Northampton this year is but a repetition of its experience in previous years, and of the experience of other towns.

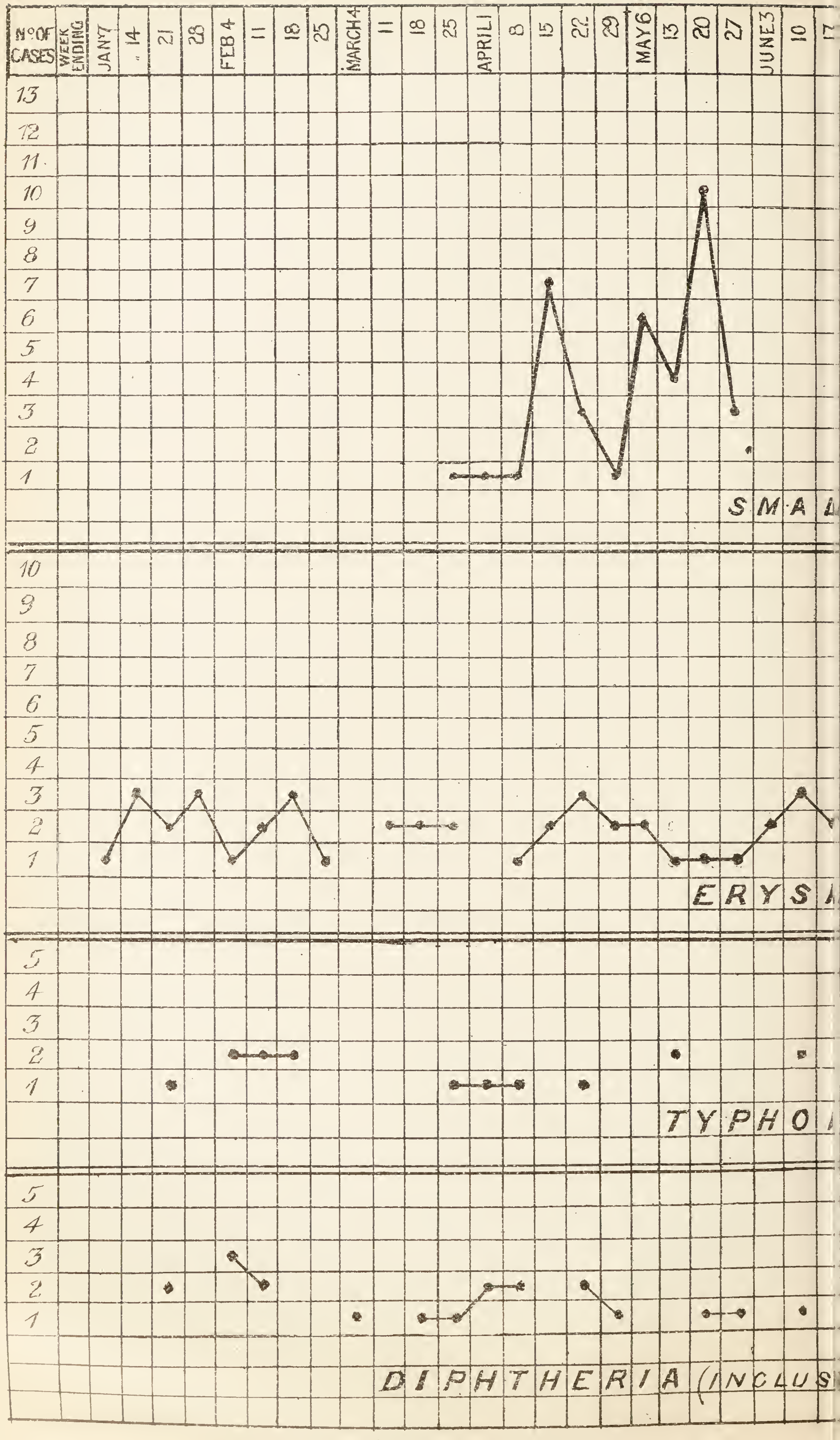
One important benefit from the isolation of cases as they occur should not be overlooked; this is its influence in preventing the disease spreading to other children in the same house. The following list gives the number of houses in which two or more cases occurred.

In each of 54 houses 2 cases occurred.
,, ,, 31 ,, 3 ,, ,,
,, ,, 2 ,, 4 ,, ,,
,, ,, 6 ,, 5 ,, ,,
,, ,, 1 ,, 7 ,, ,,

94 houses produced a total of 246 cases.

In many of these houses the cases occurred simultaneously so that they were due to a common cause outside the house, but in others the cases were not simultaneous but one or more of the cases were later than the others. It is a fair assumption that the later cases were due to the earlier, owing to isolation at home not being carefully kept up. A fair amount of isolation is possible in a six-roomed house where there are not many children, as the front living room can always be turned into an extra bedroom, but it has often been found that parents disregard our instructions and allow the other children to enter the sick-room. In isolating cases therefore preference has always been given to single cases in a house as the maximum amount of good is secured in proportion to the number of susceptible children exposed to risk.

There is one method by which in times of stress like the present a considerable amount of isolation at home might be maintained at no great expense, this is by boarding out the other children. It might be possible to find houses where there are no children and but one or two or three adults who would be willing to take in the unaffected children from a house where a case of infectious disease had occurred for a small weekly sum paid by the Sanitary Authority. What legal difficulties there are in the way I do not know, one objection certainly presents itself, viz. that the owners of the houses to which such children are brought would object to the expense of redecoration in these houses should one of the children develop the disease. This however might be got over by the Sanitary Authority agreeing to take this expense on itself provided the children were taken to houses which it was prepared to recommend.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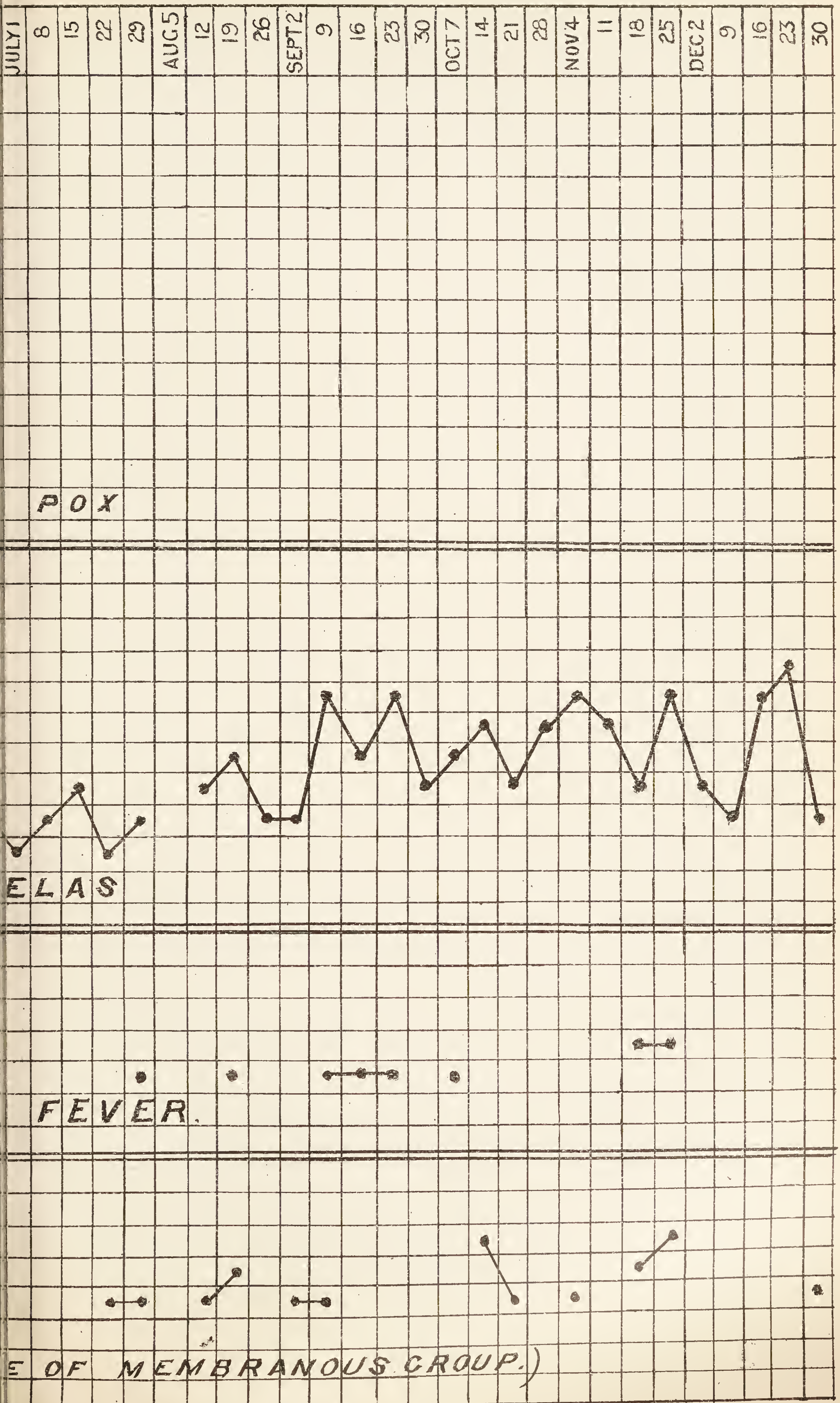
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FEVER.
E OF MEMBRANOUS CROUP.)

TYPHOID FEVER.

Year.	Population.	Notifications.	Attack rate per 1000.	Deaths.	Death-rate per 1000.	Case mortality per cent.	Zymotic Death-rate per 1000.	General Death-rate per 1000.	Removed to Hospital.	Percentage removed.
1894	61057	40	0·66	6	0·10	15·0	1·4	14·9	5	12·5
1895	61072	41	0·67	7	0·11	17·1	1·5	15·0	11	26·8
1896	61087	17	0·28	3	0·05	17·6	2·7	16·1	5	29·4
1897	61102	28	0·46	7	0·11	25·0	2·7	17·0	1	3·6
1898	61117	36	0·59	4	0·65	11·1	2·2	16·2	16	44·4
1899	61132	46	0·75	11	0·18	23·9	1·5	15·0	22	47·8
1900	61147	69	1·13	17	0·28	24·6	1·6	15·5	44	63·7
1901	87021	70	0·80	13	0·14	18·6	1·9	13·9	40	57·1
1902	88206	63	0·71	17	0·19	26·9	1·5	14·7	33	52·3
1903	89960	25	0·28	6	0·07	24·0	1·3	13·5	7	28·0

The record for the year as regards typhoid fever is satisfactory. The number of cases reported was much below the average, being only 25, giving an attack rate of 0·28 per 1,000. These numbers are below those of any year of the ten except 1896, when the attack rate was the same. The case mortality is high, though not higher than in several previous years, nevertheless that one case in each four has died is a retrospect not to be contemplated with equanimity. Typhoid fever is a disease in which careful nursing is of the greatest importance, and it is to be feared that this is not often to be had in the homes of the poor.

Seven of the cases were removed to the Borough Hospital, or a percentage of the reported cases amounting to 28. I am happy to be able to state that all of these recovered.

The following cases seem worthy of special note :

1. This child was notified on January 17, but had first taken ill in an undefined way, December 31st, 1902. About three weeks before he had come from a village in the county. The drinking water at his home there was said to have been obtained from a well near which was a cesspool.

2. A group of cases occurred which are of special interest.

a. The first case came from Brighton to Northampton at the end of 1902, suffering from typhoid fever ; he recovered.

b. His mother who nursed him fell ill about Christmas 1902 and died three weeks later.

c. The nurse who had nursed case *b.* fell ill about Jan. 27th, but had been ailing for about a fortnight previously. She was removed to the Borough Hospital and recovered.

d. A brother of case *a.* fell ill about the end of January, was removed to the Borough Hospital and recovered.

e. A married sister of case *a.* living in another house fell ill about the beginning of February and died about a month after.

It is seldom that a series of cases are so obviously dependent on one original case as in the above group. It seemed clear that there were in the house occupied by the first four cases some special circumstances favouring the spread of the disease. An examination of the drains was therefore made; this showed that they were defective, in particular that the soil pipe passed through the larder of the house and that one of its joints was defective. These defects were remedied.

It is true that it is not now considered probable that bad smells and defective drains can cause typhoid fever, but there can be no question that such defects are the means of spreading the disease once it is introduced.

3. In one house four cases occurred.

a. The first case arose without any traceable cause.

b. The first patient's mother fell ill about three weeks after his removal to hospital.

c. A sister of case *a.* fell ill a few days after her mother's removal to hospital.

d. This case is said not to have commenced till 27 days after case *c.*'s removal, but as he was notified two days after the stated commencement of the illness, it may be considered certain that the disease commenced in an undefined way ten or more days previous to its reputed occurrence; if so this case would be derived from case *c.*

In this case an examination of the drainage showed that it was in order. It is probable therefore that the cases arose by direct infection. Though the spread of the disease is commonly by water or milk or food, direct contagion is now a well recognised source of the disease.

The following list gives the localities in which typhoid infection occurred with a few notes by which it appears that 7 of the cases were probably or certainly imported and that 2 more were doubtful cases.

Localities in which Typhoid Infection occurred during 1903.

Guildhall Road	1 case.	Probably imported.
Castilian Terrace	1 ,,	
Alexandra Road	1 ,,	
Albion Place	1 ,,	Traceable to case at Castilian Terrace.
Market Street	4 ,,	One house.
Bath Street	1 ,,	Doubtful case.
Sheep Street	1 ,,	Doubtful case.
Cambridge Street	1 ,,	Ate shell fish about a fortnight before commencement of illness.
Arnold Road	1 ,,	
General Hospital	4 ,,	Imported cases.
Shakespeare Road	1 ,,	
Doddridge Square	1 ,,	
Watkin Terrace	1 ,,	Imported.
York Road	3 ,,	2 in one house. Of these the first was probably infected outside Northampton.
Ethel Street	2 ,,	One house.
Cyril Street	1 ,,	

DIPHTHERIA AND MEMBRANOUS CROUP.

Year.	Population.	Notifications.	Attack rate per 1000.	Deaths.	Death-rate per 1000.	Case mortality per cent.	Zymotic Death-rate per 1000.	General Death-rate per 1000.	Removed to Hospital.	Percentage removed.
1894	61057	17	0·28	12	0·20	70·6	1·4	14·9	3	17·6
1895	61072	18	0·29	8	0·13	44·4	1·5	15·0	1	5·5
1896	61087	16	0·26	2	0·03	12·5	2·7	16·1	1	6·2
1897	61102	11	0·18	1	0·02	9·1	2·7	17·0	...	0·0
1898	61117	21	0·34	2	0·03	9·5	2·2	16·2	4	19·0
1899	61132	16	0·26	2	0·03	12·5	1·5	15·0	...	0·0
1900	61147	16	0·26	6	0·10	37·5	1·6	15·5	1	6·2
1901	87021	23	0·26	9	0·09	39·1	1·9	13·9	3	13·0
1902	88206	28	0·32	11	0·12	39·3	1·5	14·7	2	7·1
1903	89960	39	0·43	18	0·20	46·1	1·3	13·5	3	7·7

The preceding table shows that there were 39 cases reported during the year, giving an attack rate of 0·43 per 1000. This is an increase on the previous year of 0·11. While the disease at no time rose to the level of a definite outbreak, the number of cases occurring scattered through the town shows a tendency to increase.

Diphtheria is a disease which used to be chiefly found in sparsely populated localities, but of recent years it tends to increase in towns and especially in the more densely populated areas.

The death rate from this disease, as was to be expected from the increased number of cases, was higher than usual being the same as the rate which obtained in 1894, viz. 0·20. The most striking feature about the disease is the case mortality. This is very high; so high as to render one suspicious that either the medical attendant is not called till comparatively late in the disease, or else that the treatment by anti-toxin is not so frequently adopted as it should be. Anti-toxin is an expensive remedy and in certain towns it has been found desirable for the Health Office to furnish it to medical practitioners on request. The case mortality was 46·1%, a figure which shows diphtheria or membranous croup to be the most fatal of the zymotic diseases to those whom it seizes at all seriously.

The disease is believed to spread partly at any rate through the agency of apparently healthy "contacts." These have been found to harbour in their throats germs which though not capable of lighting up the disease in their hosts are capable of producing it in susceptible persons who come much into association with these "contacts." It is to be wished that the means of ascertaining the presence of this germ—viz. bacteriological examination of swabs from suspected throats—were at our disposal. To the Borough Hospital there were removed three cases, of whom one died.

Localities in which Diphtheria and Membranous Croup occurred during 1903.

Castle Street.
Mount Gardens.
Semilong.
Swan Street.
Albion Crescent.
Clare Street.
Great Russell Street.

Lutterworth Road.
Euston Road (2 cases).
St. Leonard's Road.
Cartwright Road.
Cyril Street.
Moat Street.
East Street.
Kingswell Terrace.
Bearward Street.
Harborough Road (3 cases).
Louise Road.
Cheyne Walk.
Lady's Lane.
Alma Street, St. James.
St. John's Street.
Stanley Street.
General Hospital (imported case).
Cathedral House, Barrack Road.
Ambush Street.
Turner Street.
Ashburnham Road (2 cases).
Somerset Street.
Norfolk Street.
Baring Road, St. James.
Main Road, St. James.
Abbey Street, St. James.
Cambridge Street.
Vicarage Lane, Kingsthorpe.

WHOOPING COUGH.—This disease caused 32 deaths, or a mortality rate of 0·36 per 1,000.

Whooping cough is not treated with the respect it deserves. It is a most dangerous disease of early childhood. An examination of the table showing causes of death discloses the fact that in 1903 it caused more deaths than any other zymotic disease. The main immediate causes of death are the pulmonary complications, such as broncho-pneumonia, which it gives rise to. These are peculiarly fatal to young children, but they are to a considerable extent avoidable by care in the management of the case.

As whooping cough is not a notifiable disease the necessary instructions cannot be given by the health department, and even if it were notifiable it is to be feared that too often parents would fail to call in a medical man till the lung complications had well developed.

Table of deaths and death rates from whooping cough :

	Deaths.	Death rate per 1000.
1894	31	0·51
1895	8	0·13
1896	12	0·20
1897	63	1·03
1898	12	0·20
1899	11	0·18
1900	18	0·29
1901	37	0·42
1902	25	0·28
1903	32	0 36

From the above table it appears that 1903 while showing a slightly higher death rate from this disease than the average of the ten years was not much above the average.

DIARRHŒA.—Deaths from this numbered 30, and the death-rate was 0·33 per 1000. The following table gives the deaths and death-rates from this Zymotic disease for the last ten years.

Year.	Deaths.	Death-rate.
1894	19	0·31
1895	67	1·10
1896	35	0·57
1897	50	0 82
1898	71	1·16
1899	57	0·93
1900	33	0·54
1901	79	0·91
1902	32	0·36
1903	30	0·33

On the face of it the results for the year are satisfactory as the death-rate was almost the lowest in the decennium. Before however accepting this the following consideration must be noted. Three years ago the Local Government Board changed the form of the tables which have to be filled up by Medical Officers of Health, and in doing so they drew a distinction between diarrhœa and enteritis (of which the prominent symptom is diarrhœa). The method of classification is given in the notes appended to Table IV. at the end. Prior to this the distinction was not observed. It is therefore reasonable to assume that deaths due to many of the diseases now considered as belonging to the enteritis group were classified as diarrhœa. In order to obtain a fair comparison it is necessary to add together the deaths due to diarrhœa and those due to enteritis in each year. This owing to the classification adopted in the earlier years is not easy but it has been assumed that diseases of the digestive system in children under five years of age belong to this group. The table then is altered as follows :—

Year.	Deaths due to Diarrhœa.	Deaths due to Enteritis and Allied Diseases.	Total.	Death Rate.
1894	19	10	29	0·47
1895	67	7	74	1·21
1896	35	10	45	0·74
1897	50	16	66	1·08
1898	71	5	76	1·24
1899	57	...	57	0·93
1900	33	...	33	0·54
1901	79	26	105	1·21
1902	32	26	58	0·66
1903	30	23	53	0·59

The result so obtained does not differ greatly from the previous result, as it appears that the rate in 1903 was still among the lowest. The number 53 however shows a very serious mortality among children for it will be noticed in referring to table IV. at the end that 52 of these deaths occurred among children under five years of age.

Nevertheless the lessened mortality is a gratifying fact ; as mentioned in the section dealing with the general questions of infant mortality the cause is probably the wetness of the summer of 1903. Among its many evil points this should be put to its credit. The method in which it acted was probably the scouring of courts, allies, and passages. Organic refuse, particularly after a period of fine weather, seems to afford a suitable breeding ground for the development of the germs by which infantile diarrhœa is probably caused, and the removal of this refuse by rain probably removes many a fertile breeding ground of the disease.

In order to ascertain some of the causes of the mortality from diarrhœa in Northampton, I investigated 18 consecutive cases in the autumn of the year. The investigation was directed largely to the question of food and its administration. Two of the cases were aged 4¾ years and 10 years respectively, but as the mortality is chiefly among infants these need not be considered further. Of the 16 remaining cases 10 died of causes which would be classified under the head of diarrhœa and 6 from enteritis. The following facts were elicited.

2 were breast fed throughout.

1 was breast fed till just before its illness when it was given the bottle.

1 ,, ,, ,, for 4 months, then bottle fed 8 months.

1 ,, ,, ,, ,, 6 ,, then bottle fed for a time and later got anything that the others in the house ate. It died at the age of 17 months.

1 ,, ,, ,, ,, 1 ,, then bottle fed 11 months.

1 ,, ,, ,, ,, 3 ,, ,, ,, ,, 2 ,,

1 ,, ,, ,, ,, ½ ,, ,, ,, ,, 5 ,,

8 were bottle fed throughout.

Condensed milk was used in three cases.

The bottles used were of the "long tube" variety, though one child had also occasionally a boat-shaped bottle.

Artificial foods were used in 4 cases.

In 4 cases it was stated that diarrhœa was prevalent in the neighbourhood.

In 7 cases the parent when asked stated that the house was much infested with flies; as a rule in these cases there was a stable, or a slaughter house near by.

The cases recorded are too few to draw conclusions from but several points stand out that are probably of great importance. In the first place, diarrhœa appears to attack only a very small number comparatively of breast fed children. Apparently bottle feeding in some way conduces to the disease.

The type of bottle is evidently of importance. The long-tube bottle so much used has no merit but its cheapness, it is almost impossible to clean, and though the mothers of these children when asked described carefully how they cleaned the bottles, I have little doubt that much less frequent cleansings were made than were necessary. In one case it was stated that the milk used to curdle in the bottle, this could only have occurred through the growth of bacteria in an imperfectly cleaned bottle.

The infectiousness of the disease appears from the fact that diarrhœa was noted as prevalent in the neighbourhood of four cases. Artificial foods again are of doubtful value when not administered under medical supervision.

Flies have probably a good deal to do with diarrhœa in children owing to the way they contaminate exposed milk. The following method of feeding one case is worth noting. The child was weakly during the first year of life, it died at the age of 17 months. From the second month of its life it got bread, butter, sugar, etc. to keep it quiet. Latterly before its death, at the mature age of a year and a half, meat, potatoes, and pudding formed part of its regular diet.

Further information of the kind elicited above will be obtained by the Health Visitor who is conducting her investigations along the lines indicated. The form used by her is printed under the section devoted to infant mortality. She will of course advise mothers to feed their children along rational lines when she meets with living infants in the course of her visits, but I trust her investigations will result in showing further lines along which advice and action in reform in this matter must move.

The subjoined Table gives the number of Deaths in each year from the Seven

the years 1879 *to* 1903, *and the Annual Average*

	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889
Small Pox	...	...	...	4	...	...	...	...	...	...	...
Measles	27	5	111	23	11	3	72	31	35	4	57
Scarlet Fever... ...	...	3	36	11	23	11	6	24	38	22	15
Diphtheria or Membranous Croup ...	2	1	3	1	2	9	3	5	2	2	1
Whooping Cough ...	23	33	32	23	43	9	49	27	34	8	43
Fever	6	4	12	6	4	12	4	3	7	7	4
Diarrhœa	21	147	24	24	33	133	31	55	62	32	55
Deaths from the seven Zymotic Diseases	79	193	218	92	116	177	165	145	178	75	175
Total deaths for each year ..	933	1011	1115	962	927	999	1064	996	1025	963	1062
Death rate from the seven Zymotic Diseases per 1,000	1·6	3·8	4·2	1·74	2·15	3·2	2·9	2·5	3·1	1·2	2·9
General Death rate ...	18·9	20·0	21·4	18·2	17·2	18·2	19·1	17·6	17·8	16·5	17·9

Principal Zymotic Diseases, and the Death-rates, both Zymotic and General for for the decennial period 1894 *to* 1903.

											Borough extended.			
1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	Average for 10 years, 1894-1903.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	35	14	52	20	1	114	2	33	1	21	5	43	10	25·0
4	1	2	3	5	4	4	41	15	11	3	3	2	24	11·2
...	4	2	5	3	6	2	1	2	2	6	9	11	18	6·0
17	25	14	28	31	8	12	63	12	11	18	37	25	32	24·9
1	5	5	5	6	7	1	7	4	11	17	13	17	6	8·9
61	36	21	62	19	67	35	50	71	57	33	79	36	30	47·7
94	106	58	155	84	93	168	164	137	93	98	146	134	120	123·7
1080	1133	962	1070	908	913	979	1042	995	921	951	1216	1294	1219	1043·8
1·5	1·7	0·9	2·5	1·4	1·5	2·7	2·7	2·2	1·5	1·6	1·9	1·5	1·3	1·79
17·9	18·5	15·7	17·5	14·8	14·9	16·0	17·0	16·2	15·0	15·5	13·9	14·6	13·5	15·14

NOTIFICATIONS OF DISEASE BY THE MEDICAL OFFICER OF HEALTH.—During the year 1194 notices of the existence of infectious disease in the homes of children attending school were sent to the school managers, the object being to prevent children carrying infection from their homes to the school by their exclusion from the school.

Similar information was sent to the Public Library, the total number of notices sent amounting to 1273.

The following table contains the report of the Registrar General on the zymotic death-rate in England and Wales, etc., with similar information added as regards Northampton for the purpose of comparison.

Annual Death-Rates from certain Epidemic Diseases during the year 1903.

	Zymotic Death Rate.	Small-pox.	Measles.	Scarlet Fever	Diphtheria.	Whooping Cough.	Fever (Typhoid chiefly).	Diarrhœa.
England & Wales ...	1·46	0·02	0·27	0·12	0·18	0·27	0·10	0·50
76 Great Towns	1·89	0·03	0·36	0·14	0 20	0·33	0·12	0·71
103 Smaller Towns ...	1·41	0·02	0·29	0·12	0·16	0·28	0·11	0·43
England & Wales, less the 179 Towns ...	1·08	0·02	0·17	0·10	0·17	0·22	0·09	0·31
NORTHAMPTON ...	1·35	...	0·11	0·35	0·20	0·36	0·07	0·33

THE REFUSE DESTRUCTOR.—This was built during the year, and is an important hygienic improvement. As it has not been taken over yet by the Sanitary Authority from the contractors, comment upon its action would be premature. In the meantime it should be noted that complaints have reached this office that a great amount of dust is thrown into the air from the chimney and that this falls upon the property in the neighbourhood.

It is unfortunate that no better way has yet been discovered of dealing with refuse than its destruction by fire. No doubt a certain amount of power is produced in the course of the destruction which can be utilised, but it seems wasteful to utilise organic refuse for this purpose, for organic refuse under proper conditions allowed to decompose by the action of bacteria produces substances of considerable fertilising value. Unfortunately refuse as it occurs in a town is such a mixture of all sorts of substances organic and inorganic that no such use can yet be made of its properties.

THE EDUCATION ACT.—It may seem remarkable to allude to this Act in a report dealing with the health of a town, and yet looked at properly no measure has been put on the statute-book for some years which is likely to have more far-reaching hygienic consequences. This is due to the fact that the Education Authority and the Health Authority have now become identical, or practically so. The authority in its capacity of health supervisor can make recommendations which as supervisor of education it will carry out. Such points as the isolation of children suspected of infectious disease, the instruction of teachers in the early symptoms of these diseases, the teaching of the elements of hygiene to the elder scholars, the discovery of defects of vision, of hearing, or of mind among the children attending, and the consideration of the measures to be adopted for instructing such children, the more successful combating the spread of these minor infectious diseases which are not notifiable, and many questions of school hygiene such as size, ventilation, shape of desks, hours of work and play, etc., all these come within the purview of an education authority. It is of the first importance that the rising generation should grow up sound in body as well as in mind, therefore the union of the health and education authorities should result in the co-ordination, and systematising, of all efforts hitherto directed to this end, and in the discovery and application of new methods.

WARDS—

	St. Michael	Castle.
Smallpox	...	...
Measles	...	1
Scarlet Fever	4	3
Whooping Cough	3	3
Diphtheria and Membranous Croup	...	3
Croup	...	...
Fever Typhus	...	...
Enteric	...	2
Other continued	...	...
Epidemic Influenza	6	1
Cholera	...	...
Plague	...	...
Diarrhœa	2	3
Enteritis	...	4
Puerperal Fever	1	...
Erysipelas	...	2
Other Septic Diseases	...	...
Phthisis	19	17
Other Tubercular Diseases	7	3
Cancer, Malignant Disease	17	7
Bronchitis	13	19
Pneumonia	6	21
Pleurisy	1	...
Other Respiratory Diseases	...	...
Alcoholism, Cirrhosis of Liver	...	3
Venereal Diseases	...	...
Premature Birth	7	5
Diseases and Accidents of Parturition	1	2
Heart Diseases	13	12
Accidents	2	1
Suicides	1	4
Paralysis	1	1
Marasmus	3	8
Senile Decay	10	9
Apoplexy	7	5
Diabetes	1	1
Kidney Disease	1	1
Convulsions	7	4
All other causes	24	18
Totals	157	163

CAUSES OF DEATH.

St. Crispin.	South.	North.	Kingsthorpe.	St. James.	Far Cotton.	St. Edmund
...	...	...	...	...	...	...
2	...	2	4	...	1	...
4	...	2	3	1	3	4
3	3	7	7	2	2	2
1	3	3	4	2	...	2
...	...	...	1	...	...	1
...	...	...	...	...	...	...
...	2	2	...	...	...	...
...	...	...	...	...	...	...
6	2	2	...	...	...	...
...	...	...	...	...	...	...
...	...	...	...	...	...	...
1	4	13	3	1	...	3
3	3	8	...	3	...	2
1	...	...	...	...	...	...
...	1	1	1	...	...	1
...	2	...	...	1	...	...
15	11	17	9	10	2	14
5	6	7	2	2	2	8
13	14	9	12	2	2	10
10	9	17	6	16	4	16
10	10	21	13	12	2	6
...	...	...	1	...	...	...
...	...	...	..	...	...	...
2	2	2	1	1	...	1
...	...	...	...	...	...	...
5	3	12	10	2	5	3
2	...	...	2	1	1	1
11	6	18	7	6	6	16
3	3	2	2	1	...	2
1	5	1	2	1	1	...
3	2	2	...	...	...	4
4	5	16	1	6	3	5
8	8	12	8	6	3	6
12	12	4	4	7	5	3
1	2	1	...	1	1	...
3	1	5	3	...	2	...
6	3	6	2	4	4	1
11	16	20	19	7	6	15
146	138	212	127	95	55	126

WARDS.

Cases of Infectious Diseases Notified, and number removed to Hospital.

	St. Michaels.		Castle.		St. Crispin.		South.		North.		Kingsthorpe.		St. James.		Far Cotton.		St. Edmund	
	Notifications.	Removed to Hospital.	Notifications.	Removed to Hospital.	Notifications.	Removed to Hospital.	Notifications.	Removed to Hospital.	Notifications.	Removed to Hospital.	Notifications.	Removed to Hospital.	Notifications.	Removed to Hospital.	Notifications.	Removed to Hospital.	Notifications.	Removed to Hospital.
Smallpox	6	6	4	4	1	1	3	3	21	21	1	1	1	1	...	...	...	...
Diphtheria	1	...	1	...	1	1	9	...	5	1	4	...	4	1	...	...	3	...
Membranous Croup ...	...	...	4	...	...	..	1	..	...	...	2	...	2	..	3	...	...	...
Erysipelas	16	...	19	...	22	...	14	...	19	...	9	...	21	...	10	...	9	...
Scarlet Fever	170	111	45	30	105	75	9	2	68	37	44	22	102	61	13	9	104	51
Enteric Fever... ..	4	3	3	2	2	...	10	1	2	...	...	...	...	...	...	...	4	1
Puerperal Fever ...	...	...	2	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	197	120	78	36	134	77	46	6	115	59	60	23	130	63	26	9	120	52

Deaths from Infectious Diseases.

	St. Michael.	Castle.	St. Crispin.	South.	North.	Kingsthorpe.	St. James.	Far Cotton.	St. Edmund.
Smallpox	...	...	...	...	...	...	...	...	...
Measles	...	1	2	...	2	4	...	1	...
Scarlet Fever	4	3	4	...	2	3	1	3	4
Whooping Cough ..	3	3	3	3	7	7	2	2	2
Diphtheria and Membranous Croup	...	3	1	3	3	4	2	...	2
Enteric Fever	...	2	...	2	2	...	...	...	...
Diarrhœa	2	3	1	4	13	3	1	...	3
Totals	9	15	11	12	29	21	6	6	11
Epidemic Influenza ..	6	1	6	2	2	...	...	...	...
Puerperal Fever	1	...	1	...	...	...	...	...	...
Erysipelas	...	2	...	1	1	1	...	...	1
Phthisis	19	17	15	11	17	9	10	2	14

WARDS.—In the following summary I have treated each Ward as a separate town, giving the usual figures for each. With regard to the births however the figures must be taken with caution. The number of births occurring in Northampton are supplied to this office in Registration Districts, of which there are three. It is therefore impossible to say how many births occurred in each Ward. In order to obtain approximate figures it has been assumed that the birth-rate in each Ward was the same as in the whole town, and on this basis the number of births has been calculated. Such an assumption however is only an approximation and though probably near the truth a considerable margin of error is unavoidably left. This consideration must also be taken into account when the infant mortality rate per 1000 births is considered.

I have endeavoured to eliminate the effect of the presence of Institutions for treating the sick in the various districts, by obtaining the home addresses of those who died in the General Hospital and in the Workhouse. For information on this point I am indebted to the authorities of both Institutions. While this method has enabled me to distribute to the various Wards the deaths in the Hospital, the matter has been complicated as regards the Workhouse by the fact that many deaths occurred among those who had long been inmates of the place, extending in one or two cases to as much as 12 years. It therefore seemed that the fairest way to deal with these cases was to assume that a death of anyone who had been more than one year in the Workhouse should be credited to St. Michael's Ward in which the Workhouse is situated, but that the deaths of those who had been less than a year there should be distributed to the various Wards from which they came. This has been done so far as possible, but even among these cases some were found without any fixed address who were necessarily credited to St. Michael's Ward.

ST. MICHAEL.

Population, estimated in the middle of 1903	14,569
Inhabited houses (Census 1901)	2750
No. of inhabitants in each house (Census 1901) ...	4·99
Deaths, 1903	157
Death-rate	10·78
Zymotic deaths (from the seven principal epidemic diseases)	9
Zymotic death-rate	0·62

Cases of scarlet fever notified	170
Attack rate of scarlet fever per 1000	11·67
Deaths from scarlet fever	4
Case mortality of scarlet fever per cent.	2·35%
Births	355
Deaths of infants (under 1 year)	31
Infant mortality rate per 1000 births	87·3
Deaths from phthisis	19
Death-rate from phthisis	1·30
Deaths from other tubercular diseases	7
Total deaths from tubercular diseases	26
Death-rate from tubercular diseases	1·78

CASTLE.

Population, estimated in the middle of 1903	10,598
Inhabited houses (Census 1901)	2179
No. of inhabitants in each house (Census 1901)	5·13
Deaths, 1903	163
Death-rate	15·38
Zymotic deaths	15
Zymotic death-rate	1·41
Cases of scarlet fever notified	45
Attack rate of scarlet fever per 1000	4·25
Deaths from scarlet fever	3
Case mortality of scarlet fever per cent.	6·66%
Births	258
Deaths of infants under 1 year	47
Infant mortality rate per 1000 births	182·2
Deaths from phthisis	17
Phthisis death-rate	1·60
Deaths from other tubercular diseases	3
Total deaths from tubercular diseases	20
Death-rate from tubercular diseases	1·89

ST. CRISPIN.

Population estimated in the middle of 1903	11,092
Inhabited houses (Census 1901)	2182
No. of inhabitants in each house (Census 1901)	5·11

Deaths, 1903	146
Death-rate	13·16
Zymotic deaths	11
Zymotic death-rate	0·99
Cases of scarlet fever notified	105
Attack rate of scarlet fever per 1000	9·47
Deaths from scarlet fever	4
Case mortality of scarlet fever per cent.	3·81%
Births	271
Deaths of infants under 1 year	29
Infant mortality rate per 1000 births	107·0
Deaths from phthisis	15
Death-rate from phthisis	1·35
Deaths from other tubercular diseases	5
Total deaths from tubercular diseases	20
Death-rate from tubercular diseases	1·80

South

Population estimated in the middle of 1903	7428
Inhabited houses (Census 1901)	1618
No. of inhabitants in each house (Census 1901)	4·87
Deaths, 1903	138
Death-rate	18·58
Zymotic deaths	12
Zymotic death-rate	1·61
Cases of scarlet fever notified	9
Attack rate of scarlet fever per 1000	1·21
Deaths from scarlet fever	0
Case mortality of scarlet fever per cent.	Nil.
Births	181
Deaths of infants under 1 year	31
Infant mortality rate per 1000 births	171·3
Deaths from phthisis	11
Death-rate from phthisis	1·48
Deaths from other tubercular diseases	6
Total deaths from tubercular diseases	17
Death-rate from tubercular diseases	2·29

NORTH.

Population estimated in the middle of 1903	13,740
Inhabited houses (Census 1901)	2733
No. of inhabitants in each house (Census 1901)	5·04
Deaths, 1903	212
Death-rate	15·43
Zymotic deaths	29
Zymotic death-rate	2·11
Cases of scarlet fever notified	68
Attack rate of scarlet fever per 1000	4·95
Deaths from scarlet fever	2
Case mortality of scarlet fever per cent.	2·94%
Births	335
Deaths of infants under 1 year	70
Infant mortality rate per 1000 births	208·9
Deaths from phthisis	17
Death-rate from phthisis	1·24
Deaths from other tubercular diseases	7
Total deaths from tubercular diseases	24
Death-rate from tubercular diseases	1·75

KINGSTHORPE.

Population estimated in the middle of 1903	10,017
Inhabited houses (Census 1901)	1886
No. of inhabitants in each house (Census 1901)	4·76
Deaths, 1903	127
Death-rate	12·68
Zymotic deaths	21
Zymotic death-rate	2·10
Cases of scarlet fever notified	44
Attack rate of scarlet fever per 1000	4·39
Deaths from scarlet fever	3
Case mortality of scarlet fever per cent.	6·81%
Births	244
Deaths of infants under 1 year	25
Infant mortality rate per 1000 births	102·5
Deaths from phthisis	9
Death-rate from phthisis	0·90

Deaths from other tubercular diseases	2
Total deaths from tubercular diseases	11
Death-rate from tubercular diseases	1·10

St. James.

Population estimated in the middle of 1903	8248
Inhabited houses (Census 1901)	1482
No. of inhabitants in each house (Census 1901) ...	4·80
Deaths, 1903	95
Death-rate	11·52
Zymotic deaths	6
Zymotic death-rate	0·73
Cases of scarlet fever notified	102
Attack rate of scarlet fever per 1000	12·37
Deaths from scarlet fever	1
Case mortality of scarlet fever per cent.	0·98%
Births	201
Deaths of infants under 1 year...	28
Infant mortality rate per 1000 births	139·3
Deaths from phthisis	10
Death-rate from phthisis	1·21
Deaths from other tubercular diseases...	2
Total deaths from tubercular diseases	12
Death-rate from tubercular diseases	1·45

Far Cotton.

Population estimated in the middle of 1903	4581
Inhabited houses (Census 1901)	908
No. of inhabitants in each house (Census 1901) ...	4·50
Deaths, 1903	55
Death-rate	12·01
Zymotic deaths	6
Zymotic death-rate	1·31
Cases of scarlet fever notified	13
Attack rate of scarlet fever per 1000	2·84
Deaths from scarlet fever	3
Case mortality of scarlet fever per cent.	23·31%
Births	112

Deaths of infants under 1 year	19
Infant mortality rate per 1000 births	169·6
Deaths from phthisis	2
Death-rate from phthisis	0·44
Deaths from other tubercular diseases	2
Total deaths from tubercular diseases	4
Death-rate from tubercular diseases	0·87

St. Edmund.

Population estimated in the middle of 1903	9687
Inhabited houses (Census 1901)	1864
No. of inhabitants in each house (Census 1901)	4·88
Deaths, 1903	126
Death-rate	13·01
Zymotic deaths	11
Zymotic death-rate	1·13
Cases of scarlet fever notified	104
Attack rate of scarlet fever per 1000	10·74
Deaths from scarlet fever	4
Case mortality of scarlet fever per cent.	3·85%
Births	236
Deaths of infants under 1 year	21
Infant mortality rate per 1000 births	89·0
Deaths from phthisis	14
Death-rate from phthisis	1·44
Deaths from other tubercular diseases	8
Total deaths from tubercular diseases	22
Death-rate from tubercular diseases	2·27

WARDS.	Population Estimated 1903.	No. of inhabitants in each house Census 1901.	Death rate, 1903.	Zymotic death rate.	Attack rate of Scarlet Fever per 1000.	Case mortality of Scarlet Fever per cent.	Infant mortality, rate per 1000 births.	Death rate from Phthisis.	Death rate from all Tubercular Diseases.
St. Michael	14569	4·99	10·78	0·62	11·67	2·35%	87·3	1·30	1·78
Castle	10598	5·13	15·38	1·41	4·25	6·66%	182·2	1·60	1·89
St. Crispin	11092	5·11	13·16	0·99	9·47	3·81%	107·0	1·35	1·80
South	7428	4·87	18·58	1·61	1·21	nil.	171·3	1·48	2·29
North	13740	5·04	15·43	2·11	4·95	2·94%	208·9	1·24	1·75
Kingsthorpe	10017	4·76	12·68	2·10	4·39	6·81%	102·5	0·90	1·10
St. James	8248	4·80	11·52	0·73	12·37	0·98%	139·3	1·21	1·45
Far Cotton	4581	4·50	12·01	1·31	2·84	23·31%	169·6	0·44	0·87
St. Edmund	9687	4·88	13·01	1·13	10·74	3·85%	89·0	1·44	2·27
The Whole Borough ...	89960	4·94	13·55	1·3	7·36	3·6%	137·2	1·26	1·73

Before drawing any inferences from the foregoing table a word of caution is necessary. The numbers dealt with are comparatively small and extend over only one year. No secure inference can be drawn as to the comparative healthiness or unhealthiness of a Ward until the figures are available for a number of years. The following statements apply only to the year 1903.

In St. Michael Ward, scarlet fever was very prevalent but of a very mild type. The zymotic death-rate was the lowest in the town, and this is true also of the infant mortality-rate. The general death-rate was also exceptionally low being the lowest rate in Northampton. It appears therefore that the presence of the Workhouse in this district with its 380 (Census 1901) inhabitants did not increase the apparent death-rate. It should be noted also that this Ward is the most populous in the town.

The Castle Ward is one of the worst as regards general death-rate and infant mortality rate. It was not attacked by scarlet fever to any great degree. The death-rate from phthisis is at its highest in this Ward, but the rate is low and does not greatly differ from the rate foi the whole borough.

St. Crispin Ward had a low zymotic death-rate, and a low infant mortality rate. Scarlet fever was prevalent during the year.

South Ward had a bad pre-eminence over the other wards by virtue of its death-rate. The infant mortality rate was high, and the death-rate from all tubercular diseases was the highest in the borough. This latter rate was however, regarded by itself, low, and did not differ very greatly from the general rate for the borough. The increased mortality was incident on all ages. The Ward compared with other wards was exceptionally free from scarlet fever.

North Ward, the next most populous ward to that of St. Michael, had a high general death-rate, but did not nearly approach that in the South Ward. Its zymotic death-rate was the highest, as was also its infant mortality rate. The main factors in the increase of the infant death-rate were the number of cases which occurred of diarrhœa and enteritis (17), of premature birth (12), and of marasmus (12). Scarlet fever was not prevalent to any great extent.

Kingsthorpe Ward had a low general death-rate, a high zymotic death-rate, a low infant mortality rate, and the lowest death-rate from phthisis and tubercular diseases, with the exception of Far Cotton Ward. Scarlet fever was not prevalent to any great extent.

St. James Ward had the next lowest death-rate to St. Michael Ward, and was second only to St. Michael in the lowness of its zymotic death-rate. Scarlet fever was exceptionally prevalent being more prevalent in this ward than in any other in proportion to population.

Far Cotton Ward had a low death-rate, and was only lightly attacked by scarlet fever. Its infant mortality rate was high, but the death-rate from phthisis and tubercular diseases was lower than in any other ward. The high case mortality is not of any import as the number of deaths was only three. This was a high fatality in a total of 13 cases, but is, regarded by itself, insignificant. I am disposed to think that if the actual figures could be obtained of the births in the various wards that the infant mortality rate would be much lower in Far Cotton Ward but would be on the other hand higher in South Ward.

St. Edmund Ward was freely attacked by scarlet fever, but it had a very low infant mortality rate, being second only to St. Michael Ward in this respect. Its death-rate from all tubercular diseases was relatively high.

NOTE.—When the terms 'high' and 'low' are used in the above description, it must be understood that these terms are used relatively to the rates in other wards, and not with reference to other towns. Compared with some other towns the statistics of Northampton are not unfavourable.

The BOROUGH HOSPITAL.—The cases admitted during 1903 were:—

Disease.	Total Admitted.	Died.	Recovered.	Under treatment Jan. 1st, 1904.
Scarlet Fever	410	10	324	76
Diphtheria	14	4	10	0
Typhoid Fever	7	0	7	0
Total	431	14	341	76

On January 1st, 1903, there were 36 patients in the hospital; there were therefore in the wards during the year 467 persons.

The following patients were sent in by the Brixworth Rural Sanitary Authority, a fee of £2 2s. 0d. per week being charged for each.

Scarlet Fever	4
Diphtheria	10

Scarlet Fever during the latter part of the year appeared in the Workhouse schools, 28 cases in all being notified and admitted.

Admissions from the various Districts. (1) Civil Parishes.

Disease.	St. Giles' Registration District.	All Saints'	Kingsthorpe.	St. James'	Far Cotton.
Scarlet Fever	282	11	35	61	9
Diphtheria	1	1	...	1	...
Typhoid Fever ...	6	1	...	...	...
Total	289	13	35	62	9

(2) Wards.

Disease.	St. Michael.	Castle.	St. Crispin.	South.	North.	Kingsthorpe.	St. James.	Far Cotton.	St. Edmund.
Scarlet Fever ...	111	30	75	2	37	22	61	9	51
Diphtheria ...	...	...	1	...	1	...	1	...	...
Typhoid ...	3	2	...	1	...	...	...	...	1
Total ...	114	32	76	3	38	22	62	9	52

Yearly admissions to the Borough Hospital since 1892 :—

Year.	Scarlet Fever.	Typhoid.	Diphtheria.	Smallpox.	Total for year
1892	126	11	1	2	140
1893	66	—	—	47	113
1894	200	4	2	—	206
1895	140	10	1	—	151
1896	165	12	1	—	178
1897	438	1	—	—	439
1898	322	16	4	—	342
1899	232	23	—	—	255
1900	71	44	1	—	116
1901	115	41	6	—	162
1902	124	35	15	—	174
1903	410	7	14	—	431
Totals...	2409	204	45	49	2709

The SMALLPOX HOSPITAL.—The total admitted during the year was 38 ; of these 37 came from the Borough, while one was admitted at the request of the Brixworth Rural Sanitary Authority, a charge of £3 3s. 0d. per week being made.

Civil Parishes.

Civil Parish.	St. Giles', R.D.	All Saints'	Kingsthorpe.	St. James'.	Far Cotton.
Smallpox	25	7	4	1	—

Wards.

Ward.	St. Michael.	Castle.	St. Crispin.	South.	North.	Kingsthorpe.	St. James	Far Cotton.	St. Edmund.
Smallpox	6	4	1	3	21	1	1	—	—

Yearly admissions to the Smallpox Hospital since 1900 :—

1900	1901	1902	1903
—	—	2	38

The BOROUGH HOSPITAL. — It will be seen from the above figures that the Borough Hospital has been strained to the utmost of its resources by the epidemic of scarlet fever. A considerable proportion of the cases however were admitted during the last three months of the year, and it was not till the last two months that the accommodation proved quite inadequate for the numbers who desired admission. Prior to this the vast majority of the cases desiring admission were taken in. As it was foreseen during the early part of the year that all the accommodation at the disposal of the hospital would be required, the old building at the rear of the hospital was fitted up with gas, water, beds, bedding, crockery, etc., and later on was thrown open to patients. It is a fortunate circumstance that typhoid fever prevailed to a much less degree than usual, and that diphtheria though above the average did not anywhere rise to the point of an outbreak. It was possible therefore to devote all the beds to the scarlet fever patients. This was done and at the end of the year there were five distinct buildings devoted to the treatment of these cases. The increase in the number of the patients naturally led to a great increase in the staff, but the accommodation provided for the staff in the administration block proved quite inadequate for the purpose. Two rooms were therefore engaged at the lodge of the cemetery near the hospital, and these were used by the nurses on night duty as bedrooms during the day. A further increase in the staff was provided for by accommodating the probationers engaged in an empty ward.

Plans were at the same time got out for the extension of the administrative block and these were passed by the Council. It was found however that the necessary capital could be obtained more advantageously by delaying the erection of the building for a time, and as the nurses in general did not complain of their quarters, this delay was sanctioned by the Council. It should be remembered that the construction of this building is only postponed—I hope to see it commenced shortly, as the conditions under which the nurses live are necessarily productive of some discomfort. I desire to express my gratification however at the cheerfulness with which in general the discomforts are borne. Each nurse recognises that the conditions are but temporary, and expects the epidemic to be but temporary too.

The mortality rates per cent. of the diseases treated during the year was as follows :—

Scarlet Fever ...	2·4
Diphtheria ...	14·3
Typhoid ...	nil.

The following are the mortality rates per cent. for scarlet fever during the years 1894-1903. In the case of diphtheria it is not worth while tabulating the figures as the numbers treated are so small. As regards typhoid fever the cases in hospital during 1903 were apparently not of as severe a type as many of those treated in former years and the number 7 is too small for purposes of comparison.

Scarlet fever mortality rates per cent. :—

1894	1895	1896	1897	1898	1899	1900	1901	1902	1903
1·0	3·6	2·6	4·1	2·5	3·0	2·8	1·7	1·6	2·4

In this respect therefore 1903 was an average year.

The following complications occurred among the patients. I wish to observe however that the complication was recorded even where there was merely a trace of its presence, hence in the vast majority of cases the complications though present were of slight importance, also many of the cases had more than one complication, *e.g.* otorrhœa and rhinorrhœa often run together, and the worse cases often showed three or more complications.

Albuminuria	occurred in	55	cases.	
Otorrhœa	,,	52	,,	
Cardiac Murmurs	,,	34	,,	
Rhinorrhœa	,,	24	,,	
Severe Angina	,,	13	,,	
Chicken Pox	,,	10	,,	
Ringworm	,,	7	,,	(As a rule present on admission)
Abscesses	,,	9	,,	
Epistaxis	,,	6	,,	
Ulcers on Tongue	,,	6	,,	
Urticaria	,,	4	,,	
Erythema Multiforme	,,	3	,,	
Conjunctivitis	,,	3	,,	(Present on admission)
Rheumatism	,,	3	,,	
Tonsillitis (not of the primary attack)	,,	2	,,	
Jaundice	,,	2	,,	
Erythema Fugax	,,	1	,,	
Pneumonia	,,	1	,,	
Chorea	,,	1	,,	(Present on admission)

Albuminuria, indicating implication of the kidneys, is really a symptom of one form of scarlet fever and is scarcely at all avoidable, though much may be done when it has once occurred.

With regard to otorrhœa, rhinorrhœa, and cardiac murmurs, the first point to be made is that a great number of these occurred in scarlet fever patients in the early part of the year, and it was at this time that most of the deaths occurred. This harmonises with the view that cases are likely to be more severe at the commencement of an epidemic. But another cause was probably at work. In the early autumn it was found that complications were becoming severe and frequent in the reception ward, and that even apparently mild cases were developing them. Just previous to this several cases very ill when admitted had been treated in this ward, and there were at the time two or three of these in the ward not progressing as favourably as I could wish. It seemed probable that the ward was in some way to blame, that probably the germs cast off by these serious cases were in some way inhaled by the other patients. The first step therefore was to empty and disinfect the ward. The disinfection was thoroughly carried out by the corrosive sublimate spray, and by steam disinfection of all articles which could be disinfected in this way. Next, enquiry showed that when sweeping the ward in the morning a great deal of dust was raised. It seemed probable that this dust was the medium of infection. Sawdust therefore was procured and thoroughly damped with Izal and this has since been sprinkled on the floors of all the wards before sweeping; it caused an almost complete cessation of the dust trouble when sweeping. I am happy to state that these measures were completely successful, complications ceased occuring in the ward as if by magic and all the patients rapidly improved. I have no doubt that occasional disinfection of wards is of great importance in isolation hospitals, and that the annual cleansing and limewashing carried out in the wards is a measure of use not only for cleanliness' sake, but of the greatest possible hygienic value to the patients.

The occurrence of "return cases," a feature of all isolation hospitals for scarlet fever, makes a description of the methods in use to prevent this of interest.

All convalescent patients take a bath twice weekly, in water to which two tablespoonfuls of Izal has been added; if there is much desquamation, the baths are taken oftener. The younger children are washed all over every day.

As there is evidence that discharges from ears, noses, etc., play an important role in infecting others, these are carefully attended to, the aim being to allow no one to leave the hospital until such discharges have entirely ceased. In some cases this aim has not been attained and patients have been discharged with some slight running still existing, but only after the usual date for discharging patients has long passed and the condition appears to have become chronic ; in these cases it is assumed that the discharge no longer contains the infection of scarlet fever. An unfortunate fact is that even after a discharge has ceased to appear and the patient has been sent home the discharge has on some occasions reappeared. Some of our return cases have been apparently due to this.

Besides this treatment of actual discharges, as there seems to be evidence that the ears, noses, and throats of patients may harbour infection which is in no way injurious to themselves, as they have become proof against infection, but which may cause the disease in others, during the fortnight preceeding discharge the throats of all patients are sprayed with an antiseptic, and their ears and noses syringed with an antiseptic at the same time.

When the patient appears to be ready for discharge he takes a clear water bath, and next day is examined carefully by the Medical Officer. It is rare to find evidence of desquamation remaining on the body generally, but occasionally a little adherent skin which will in time desquamate is found on the feet. It is the rule that such feet are to be soaked daily in water containing Izal. This both softens the skin, making it more ready to come off, and also disinfects it. It is highly improbable that such pieces of undesquamated skin are in any way infectious, and a case in this condition is not detained on this account, but, to make assurance doubly sure, such feet are wrapped up in compresses soaked in a solution of carbolic acid for twenty-four hours before the discharge of the patient.

On the morning after the patient has been declared fit for discharge, he takes a bath containing the usual proportion of Izal, and while in the bath-room, his nose, ears,and throat are syringed and sprayed for the last time. The nurse who attends the patient on this occasion, before entering the bath-room, puts on a special linen wrapper used for the purpose, which has been disinfected previously and is again disinfected after use. The patient then dresses in a set of clothes which has been brought to the hospital by his relatives some days previously, the parcels containing these clothes not being opened till the patient is ready to put them on. After dressing, the patient leaves the bath-room by a door opening on to the grounds of the hospital ; he does not enter the ward again. In the case of female patients, whose hair requires to be dried, the patient is brought to the kitchen fire after the bath, but does not enter the ward again ; except on these occasions patients are not allowed to enter the ward kitchens. There is obviously a certain amount of unavoidable flaw in these arrangements, though they are the best at present available. A small special discharging block, to which the patients could be taken for the last bath would be preferable.

The clothes which the patient has worn in the hospital are disinfected, and afterwards all washable articles washed. They are then parcelled up and delivered over to the relatives who call some days after for them.

It is difficult to see how infection can remain in hospital-treated cases after all this rigid precaution. But the occurrence of return cases in connection with all hospitals, though they are very few in proportion to the total number treated, indicates that there is a flaw somewhere. Probably it will not be discovered till bacteriology supplies us with a reliable test for the existence of infection.

Before leaving the subject I desire to allude to the willing service rendered by the matron and nursing staff of the hospital. The great increase in the number of cases admitted into the hospital necessitated much discomfort at first to the matron and nurses. This has been to a large extent remedied by the measures previously mentioned, but it is but fair that I should testify to the uncomplaining manner in which this was borne. Their services have been able and efficient. Frequent changes were necessarily made in the staff during the year, and several probationers were taken on. I am pleased to be able to state that these latter have worked hard during the year and give promise of high efficiency.

WATER SUPPLY.—This has been in the hands of the Corporation since the year 1884. There are two sources from which Northampton derives its supply of water; these are the reservoir at Ravensthorpe and the Billing-road well.

The Ravensthorpe Reservoir. — This is situated about eight miles from Northampton; it receives the surface water from a gathering ground of about 3000 acres. The capacity of the reservoir is about 400,000,000 gallons. The gathering ground is mainly grass land but is in part cultivated land. The population within its boundaries numbers about 100. Special arrangements have been made dealing with the sewage from this population, and so far as I can judge on a superficial examination no danger need be feared from this source. The great protection against danger from a gathering ground which is by no means of the high standard obtainable among hilly countries where the population is sparse and the ground unsuited to agriculture is the fact that the water is collected in a large reservoir where the purifying agencies of sun, air, and even the living inhabitants of the water have time to exert their effect. To supplement these the action of filters must be and has been added and the result is a water which though not equalling the high standard of purity obtainable from such sources at Loch Katrine or Lake Vrynwy is yet a water which both analyst and bacteriologist can declare to be of a satisfactory degree of purity. It is however a water which can obtain this commendation only at the price of constant watchfulness.

At the commencement of the year grave fears were entertained that a water famine was inevitable in Northampton for on January 1st, 1903, the level of the water in the reservoir stood 10 feet 7 inches below the sill of the dam. This was however the period of greatest deficiency during the year. The excessive rainfall of the year which amounted to 32·6 inches on the gathering ground more than made up the deficiency, and on January 1st, 1904, the reservoir was overflowing.

Billing-Road Well.—This is a "deep" well, penetrating as it does about 150 feet of impervious clay on its way to the water bearing stratum from which it derives its perennial flow. The total depth of the well is 172 feet, and over 20 feet of this is constantly occupied with water which the constant pumping operations do not reduce, so long as a certain limit is not passed. This limit is about 400,000 gallons daily, so that the supply is really a remarkable one. The water is pure, but like all deep well water is hard, a fairly satisfactory water is produced by mixing it with the water derived from the Ravensthorpe reservoir.

The inhabitants of Northampton are penurious in their expenditure of water. The average amount of water supplied daily in the town during the year ending March, 1903, was 1,424,800 gallons. Reckoning the population during that twelve months as approximately 89,000, the average daily supply per head was 16 gallons.

It has been reckoned (Parkes) that for personal and domestic use without baths 12 gallons per head daily is the minimum, but with baths and perfect cleanliness 16 gallons should be allowed. This however takes no account of the amount used by water closets, by animals, by municipal employees for washing and watering streets, for extinguishing fires, etc., nor does it allow for unavoidable waste. These items may be reckoned as follows :—water closets, 6 gallons, town and trade purposes, animals, 5 gallons, waste 3 gallons, each per head, giving a total of 30 gallons per head per day required. It is to be feared that the small requirements of Northampton indicate a defective appreciation of the value of thorough personal and household cleanliness, and a disposition to be economical in flushing water closets. In this connection I must mention with reprobation the numerous water closets in the town which have no flushing apparatus. I see no merit in the arrangement except its economy of water, which from a hygienic stand point is false economy. Constant complaints are made by the Sanitary Inspectors about the filthy condition of the pans of water closets, this is partly due to their shape, but in much greater part due to the want of flushing. No doubt there is nothing to prevent those who use these closets from flushing by hand, but a very slight acquaintance with human nature will answer the question whether this is likely to be sufficiently done in the negative. It is deeply to be regretted that the financial arrangements necessitated by the Act under which the Corporation supplies water put a premium on the construction of closets without flushing apparatus.

The Flushing of Sewers, Watering of Streets, &c.—It is clear that a water not sufficiently pure for drinking purposes may yet be sufficiently pure for these purposes. Up to the present it has been the custom to use the ordinary potable water of the town supply for this work, but a scheme was brought forward during the year for utilising water from the Tower well, and Conduit head supply. The advantage of the scheme is that every gallon used from these sources is a gallon of potable water saved, and that the day which will inevitably come when a new source of water must be found for the town is put off a little longer. The Water Engineer estimates that the saving will amount to 60,000 gallons per day at first, and that further saving may be anticipated.

In the early part of the year the danger of a water famine was ever present as shown by the low point at which the water in the reservoir stood. It became therefore necessary to seek for a new source of supply in case the rainfall during the year was deficient. As a wholesome water supply is a matter of the greatest importance many of the streams in the neighbourhood were studied with a view to their utilisation. In such a matter the most important point to examine is not the chemical constitution of the water but the circumstances under which the stream rises, the land through which it flows, and the possibilities of contamination. Analytical examination however must not be neglected as it often gives corroboration to suspicions previously held, or raises suspicion of a water which had been considered on a superficial examination sufficiently pure for use after filtration. Each examination must be used as a check on the other.

Several streams therefore were inspected along their courses by the Water Engineer, Mr. Tomlinson, and myself, and specimens of the water were sent to the Public Analyst. The following report refers to one of these.

"The water had a faint odour of decayed wood, and, when viewed in bulk, was of a faint yellow colour, and was slightly turbid. It contained, and yielded, in grains per gallon :—

Total solid matter	25·20
Loss on ignition	2·24
Combined chlorine	1·36
Equal to common salt	2·24
Nitrogen as nitrates	0·18
Nitrites	none
Ammonia	0·0015
Albumenoid or organic ammonia	0·009
Oxygen required to oxidise the organic matter ...	0·170

HARDNESS IN DEGREES.

Temporary	14°·4
Permanent	3°·9
Total ...	18°·3

"The slight turbidity was due to the presence of earthy matter with debris of vegetable matter, and a few living and moving organisms such as feed on decaying vegetable matter."

"This water is not of sufficient organic purity to be used, unfiltered, for drinking purposes. It does not appear however, so far as chemical analysis can determine to be a sewage polluted water. Its analysis, appearance, and odour are suggestive of decaying vegetable matter."

Of course there was no suggestion that any water used should be supplied unfiltered, and on the face of it this report is fairly satisfactory, and it seemed that the water might be used. An examination of the stream however along its course showed that a village was situated quite close to the bank of the stream, and in this village the arrangements for sanitary conveniences were of the most primitive description. On account of the liability to sewage contamination this water was rejected.

Another stream produced a water which gave the following analysis :—

"The water was free from odour ; when viewed in bulk it was of a slight brown colour, and slightly turbid. It contained and yielded in grains per gallon :—

Total solid matter	28·00
Loss on ignition	2·52
Combined chlorine	1·55
Equal to common salt	2·56
Nitrogen as nitrates	0·12
Nitrites	traces
Ammonia	0·0145
Albumenoid or organic ammonia	0·0135
Oxygen required to oxidise the organic matter ...	0·111

HARDNESS IN DEGREES.

Temporary	15°·1
Permanent...	5°·7
Total ...	20°·8

"The slight turbidity of the sample was due to the presence of earthy matter and vegetable debris, intermixed with numerous living and moving organisms such as are met with in foul waters."

"This water is polluted with sewage matter and is in my opinion quite unfit for drinking purposes."

"Its use for drinking will be attended with danger to health."

In this case the chemical analysis proved an important check on a superficial examination, for this examination had suggested that the water was a pure one. The stream was therefore traced for several miles and several sources of pollution were found. This water was therefore discarded.

BACTERIOLOGICAL EXAMINATIONS.—In regard to water great stress is being laid on the results of these examinations as an indication of the purity or impurity of a water supply.

It will be observed that there is nothing in the chemical substances discovered in the usual routine analysis of water which is in any way injurious to health. In the process of chemical examination impurities of many kinds are reduced by chemical treatment to a few comparatively simple substances and these are estimated. In appraising the value of a result so obtained it is to be noted that these simple substances are the result of the decomposition of many different complex bodies; chemical examination does not allow us to judge what these are, nor whether they are injurious to health. It is often highly improbable that these substances are injurious; no doubt in a concentrated condition they might be, but in the highly diluted and oxidised form in which they are as a rule found, no harm need be feared. Even in the case of such simple and stable chemical substances as the salts of lead, which have occasionally caused outbreaks of lead poisoning in isolated water supplies, a considerable period must elapse before ill effects begin to occur, and it is only because metallic salts such as these tend to accumulate in the body that they ultimately prove injurious. On the other hand, complex organic bodies would be split up and eliminated from the organism in a few hours. The importance of recognising the existence of these bodies therefore depends not on themselves, but on the indication they give of recent pollution. Chemical examination therefore, in its final result, is not an index of pollution, but only the index of an index, and at each step in the chain of reasoning uncertainties step in.

Efforts therefore have been made in recent years to obtain a more direct index of pollution, and this index has been to a considerable extent obtained by the examination of water for bacteria. At first, stress was laid on the number of bacteria in a given quantity of water, but as is well known, the vast majority of water-bacteria are quite innocuous. The next step therefore was to search for special varieties of bacteria. Of course it would be most desirable to determine positively whether disease-producing bacteria existed in water, and if so, in what quantities. Unfortunately the quest so far has been found to be surrounded with such difficulties as to be quite unpractical, and attention was therefore turned to the bacteria of sewage, for it was argued that if the special flora of sewage were found in a specimen of water to an abnormal degree it was a fair inference that the water had been recently contaminated with sewage matter. Experiment has justified this conclusion, and in the bacillus coli communis we have a sewage bacterium which may be taken, when present in quantity, as a definite index of sewage contamination. Bacteriological examination therefore gives a result which is a direct index and not, as in chemical examination, only an index of an index. Remembering that the chemical substances produced by organic matter are not in themselves to any extent injurious when highly diluted, it would appear that a water might be condemned by a chemist and justified by a bacteriologist. This has occurred in connection with subsoil water, which, though it is often a source of illness when derived from wells constructed on old insanitary principles in cultivated soil, has been declared by Koch and Poore a safe water when wells are properly made. Yet this water, even from properly constructed wells, would as a rule be condemned by a chemist.

An important check could therefore be kept on the water supply of Northampton were the means of making bacteriological examinations readily available. It is true that it is possible to do this by the regular and frequent submission of samples to a bacteriologist in London or elsewhere, but such a course would be costly. It would be cheaper to establish a bacteriological laboratory in the town at which such examinations could be made. The Water Engineer informs me that he shares my views on this subject, that he would personally make such examinations at regular intervals, and that he advocates strongly the establishment of such a laboratory. He is of opinion that it is only by regular and frequent examinations of this kind that reliable results can be obtained.

A bacteriological laboratory would be of the greatest use to myself in tracing the causes of an outbreak of disease. The examination of sputum for tubercle bacilli, of swabs from the throat for diphtheria bacilli, and of specimens of blood by the well known Widal test for typhoid fever could be made a feature of such a laboratory. It is true that I personally would not have the time to carry out regular work in this laboratory, but on special occasions and for particular objects I should be prepared to devote time and energy to the prosecution of these researches.

Subsidiary to its main features as primarily a bacteriological laboratory a certain amount of chemical apparatus would be necessary for carrying out chemical tests for water, and I suggest also for the rapid examination of milk for its fat-content so that only suspicious samples would need to be sent to the analyst.

Separate installations for the Water Engineer and the Medical Officer of Health are quite unnecessary, all that is suggested is a single place in which both could work. It need not be costly and would, I believe, well repay anything spent on it.

SANITARY ADMINISTRATION.

SANITARY ADMINISTRATION.—In presenting a report on this section of the work of the public Health Office I wish to express my appreciation of the services rendered by the Sanitary Inspectors during the year. I have found them all attentive to their duties and generally speaking tactful in carrying them out.

It is right that I should mention specially the Chief Inspector, Mr. White. I have found him exceptionally conversant with all branches of his work, and energetic in carrying it out. He has a certain enthusiasm in and affection for his work which increases greatly his efficiency. In the list following which gives particulars of the special reports made to me by the Inspectors it will be observed that his name frequently recurs, and in most cases with an asterisk preceding his report. In such cases his reports have been made with reference to matters of difficulty, and I am pleased to be able to pay a tribute to their thoroughness.

In addition to the work required in his own district Mr. White, by my direction, investigated eight premises outside his district where special difficulties were met with. This work involved a total number of 125 visits. He applied smoke, water, or volatile tests to the drains on 34 occasions.

HEALTH VISITOR.—A new appointment was made during the year, that of a Woman Sanitary Inspector and Health Visitor. Miss Gough who had had previous experience in Hampstead was appointed, and on September 21st she commenced her duties. The importance of Health Visitors as an adjunct to public health administration is coming to be universally recognised. The great advantage of such an official is that she can go into questions of personal and home cleanliness, and the management of children, in a way that a male inspector cannot both from want of time and want of special knowledge.

The following is a list of the duties which the Council considered that such an official should carry out.

1. To visit houses where a birth has taken place, to give personal instruction, and leave leaflets as to feeding and care of infants.

2. To make a special inquiry into the deaths of children under one year of age.

3. To distribute and explain leaflets as to diarrhœa, measles, whooping cough, and consumption.

4. (*a*) To make house to house visitation, and in doing so to urge cleanliness of house, clothes, and person, the destruction of refuse, and ventilation.

   (*b*) To report nuisances and sanitary defects found to the inspector of the district.

5. To keep cases of phthisis under supervision.

6. To visit workshops where women are employed.

7. To act as an inspector under the Shop Hours, and Seats for Shop Assistants Acts.

It is clear that there is abundance of work to be done, but the principal difficulties occur during the preliminary investigations. When these are fully completed, the routine visiting required will not be so great as it appears at the first blush.

I am glad to be able to state that Miss Gough has carried out her duties satisfactorily and that there has been no objection raised to her visits. As regards her relations with the rest of the staff the Chief Inspector states that there has been an entire absence of friction, a state of affairs which contrasts with some other Health Departments of which he has cognizance.

During that part of 1903 in which she carried out her duties here, she was confined to Nos. 6 and 7 of the duties given in the preceding list.

SPECIAL REPORTS BY THE SANITARY INSPECTORS.—The following is a list of the special reports made in writing to me by the Inspectors during the year. I have marked with an asterisk those which were specially well done ; in many of the other cases no opening was given to the inspector for the display of any special energy.

REPORT.	INSPECTOR.	DATE.	REMARKS.
British Schools... ...	Harper ...	3/1/03	Sanitary conveniences.
Plan of Ram Hotel ...	Sowerbutts	1/03	
Dover Co's Chimney ...	Harper ...	19/2/03	Smoke observation.
*10-12-14, Guildhall Road	White ...	26/2/03	Drainage.
Sewers in Bridge Street	Sowerbutts	11/2/03	
5, Lady's Lane... ...	Sowerbutts	11/3/03	Leaking drain rectified by Corporation.
Sewers, Bridge Street...	Sowerbutts	12/3/03	
19, Maple Street ...	Harper ...	17/3/03	Workshop, overcrowding.
Maple Street	Harper ...	17/3/03	Bakehouse, limewashing.
*Summer's Terrace ...	Sowerbutts	19/3/03	Reported under H. W. Classes Act.
Vernon Terrace Schools	White ...	30/4/03	Drainage.
Smallpox contacts ...	Sowerbutts	5/03	Kept under observation.
,, ,,	,,	,,	,, ,, ,,
Bakehouse, Drapery ...	Sowerbutts	19/5/03	Underground bakehouse.
St. Paul's Schools ...	Harper ...	20/5/03	Numbers attending.
Military Road Schools...	Harper ...	28/5/03	Number away owing to infectious disease.
St. Sepulchre's School	Harper ...	6/03	Suspected cases of Measles.
Military Road School ...	White ...	10/6/03	Measles enquiries.
*Tanner Street, Nos. 21 to 29	Sowerbutts	6/03	Plan of drainage.
66 to 76, Moore Street...	Barker ...	4/6/03	Drainage.
2 to 14, St. Michael's Avenue	White ...	1/7/03	Complaint of choked drains. No nuisance found.
Slaughter-house, Crispin Street	Sowerbutts	22/4/03	Not used as a slaughter-house.
Tripe dresser, 122, Wellingboro' Road	White ...	24/6/03	Established without leave. Given up.
Nursing Institute ...	Harper ...	16/7/03	Drainage.
Stresa, Cliftonville ...	White ...	8/03	Disinfection.
*Nursing Institute ...	White ...	27/7/03	Drainage.

REPORT.	INSPECTOR.	DATE.	REMARKS.
*Police Station, Kettering Road	White ...	12/6/03	Drainage and Urinal.
*Underground Bakehouse, Drapery	White ...	16/6/03	Alterations to be made.
*Underground Bakehouse, Abington Street ...	White ...	21/8/03	To be disused.
St. Edmund's School...	White ...	5/9/03	Sanitary condition.
10, Gurney Terrace...	Harper ...	19/9/03	Sanitary condition, with a view to the use of these houses as homes for workhouse children. Drainage.
21, Marriott Street ...			
11, Colwyn Road ...			
15, Colwyn Road ..			
*Orphanage, Castilian St.	Sowerbutts	15/8/03	Drainage. Diarrhœa prevalent.
St. James' School ...	Harper ...	14/7/03	Attendance at school.
* St. Paul's ,, ...	Harper	9/03	Sanitary conveniences and drainage with a view to taking over by Education Committee.
St. Sepulchre's ,, ...			
St. James' ,, ...			
* St. Giles' ,, ...	Sowerbutts	15/9/03	,,
St. Katherine's ,, ...			
St. Peter's ,, ...			
St. Mary's ,, ...			
All Saints' ,, ...			
St. Luke's ,, ...			
* St. Andrew's ,, ...	Barker	15/9/03	,,
St. Matthew's ,, ...			
Kingsthorpe ,, ...			
*St. Edmund's School ...	White ...	28/9/03	,,
1, Adelaide Terrace ...	Harper ...	12/10/03	Drainage.
Shop-hours Act ...	Miss Gough	22/10/03	
95, St. Michael's Road...	White ...	23/10/03	Drainage. "Scattered homes."
30, Colwyn Road ...	Miss Gough	24/10/03	Infected clothing.
*Workhouse	Barker ...	10/11/03	Scarlet fever outbreak.
*Catholic schools Clare Street. ...	White ...	1/10/03	Drainage as before.

Report.	Inspector.	Date.	Remarks.
Workshops without abstract.	Miss Gough	27/11/03	List sent to Factory Inspector.
*School of domestic economy.	Harper ...	20/11/03	Drainage.
Workshops without abstract.	Miss Gough	27 11/03	List sent to Factory Inspector.
Cowshed, 57, Thirlstane Road.	Sowerbutts	24/11/03	Disused.
1-2-3-4, Vigo Cottages...	White ...	2/12/03	Water supply.
Workshops without abstract.	Miss Gough	10/12/03	List sent to Factory Inspector.
46 and 48, Bridge Street	Sowerbutts	15/12/03	Drainage.
Report on Shop Hours, etc. Acts.	Miss Gough	12/03	Reported to Committee.
Notes on court inspection	Miss Gough	12/03	Nuisances referred to Committee and dealt with.

INSANITARY DWELLINGS.—The number of dwellings reported to the Sanitary Authority as unfit for habitation during the year was ten. These were :—

Summer's Terrace, Nos. 1 to 10.

The feature common to all these houses was their dampness. The floors of the living rooms were laid directly on the soil, not even a layer of concrete intervening; in addition, at least three feet of the back walls of their living rooms above the floor was in contact with the earth of a roadway which ran behind the houses at a higher level than the floors. The houses as a rule, were badly ventilated, only one small opening in the back wall being left to secure through ventilation. Six of the houses were filthy.

The usual notices were served after the approval of the Council, and four of these houses were put into a sanitary condition; this was accomplished by excavating a cavity underneath the floor and substituting boards for the tiles, which had previously been laid, the cavity under the floor being ventilated. The back wall, which was in contact with the earth at the back of the house, was separated from the rooms by the construction of an inside wall, leaving a ventilated cavity between the inside and outside walls. Windows also were put in the back wall of two of these houses (the two others already possessing windows) to replace the inefficient air bricks previously mentioned. Minor defects, *e. g.*, paving and spouting, were also remedied. The remaining six houses were brought before the magistrates and a closing order obtained.

The following houses reported in previous years were dealt with in various ways during the year :—

Augustine Street, Court No. 1, Houses 1, 2, 3. These have been demolished.

Castle Street, Court No. 1, Nos. 1 to 6. These houses have been demolished ; a lodging-house is about to be erected.

St. Katherine Street, No. 15. These premises have had their windows boarded up.

King Street, Court No. 1, Nos. 4 to 9. These have been turned into stores.

Bridge Street, Court 5, Nos. 2 to 9. These have been thoroughly cleared out and rendered inaccessible.

Castle Street, Nos. 66 and 68. These have been put in order and re-opened by consent of the Magistrates.

Marble Arch, Nos. 1 and 2. These are soon to be demolished ; a factory is about to be erected on the site.

Bull Head Lane, Nos. 33, 35, 37, and 39. Nos. 33 and 35 have been demolished. Nos. 37 and 39 have been boarded up.

St. James' Square, St. James' End. These houses have been turned into warehouses.

Mount Pleasant Place. Nos. 1 to 7. No. 1 has been demolished, and this is also to be the fate of Nos. 2 and 3. Nos. 4 to 7 are to be turned into stables. As some negotiations are still in progress in connection with this property, the changes have not yet been completely carried out.

Bath Place, Nos. 1, 2, 3, and 4. These have been demolished.

White's Yard, Kingsthorpe, Nos. 1, 2, and 3. These houses have been demolished.

Smith's Row, Tanner Street. These houses have been converted into warehouses.

32, Silver Street. This house has been boarded up.

Brewery Yard, Far Cotton. These houses have been largely demolished, and the small part still standing has been converted into a shed.

Bridge Street, Court 11. Nos. 2, 3, and 4. These houses have been demolished.

Bridge Street, Court 11. Nos. 1, 5, and 6. These houses have been boarded up.

FACTORY AND WORKSHOP ACT, 1901.

Factories and Workshops.—The laws dealing with factories and workshops were consolidated in the 1901 Act. As a result, the local Authority is placed in the curious position of having little or nothing to do with factories, except their sanitary conveniences, and though considerable powers are given over workshops and workplaces, these are shared by the factory inspectors. Workshops therefore, are subject to a double inspection. This curious duplication of jurisdiction is perhaps the best solution at present available of the question, but it is essentially a compromise and has its drawbacks.

The prevalence of epidemic disease during the year has prevented as many visits being paid to workshops as are desirable ; to cope both with the epidemic and with the ordinary routine work of the Health department would have demanded a larger staff than is at present available. The appointment of a Health Visitor and Sanitary Inspector has been beneficial in this direction, as it has been part of her duty to visit those workshops where women are employed.

Nevertheless, I am glad to be able to record a considerable amount of work, a summary of which is given in the annexed table.

FACTORY AND WORKHOPS ACTS.

Nature of Infringement of Acts.	Notices served.	Nuisances abated.	Notices on Books Dec. 31st, 1903.
Overcrowding	11	11	...
Insufficient closet accommodation ..	...	...	...
Absence of closet accommodation ...	...	...	...
Want of separate closet accommodation for sexes	1	1	...
Closets requiring flushing apparatus ...	28	27	1
Offensive closets, drains, &c.	22	22	...
Offensive accumulations...	19	19	...
Filthy Workshops, whitewashed and repaired	40	40	...
Forms shewing cubic space, not affixed	6	6	...
Drains re-constructed	16	16	...
Urinals abolished	...	...	...
Urinals re-constructed	3	3	...
Smoke nuisances abated	2	2	...
Insanitary traps abolished	10	10	...
	158	157	1

There are now 361 workshops registered. A number have been given up since last year's report was compiled, and a few have become factories.

In those instances where defects in sanitation were found, notices were issued, and these were invariably complied with. In no instance was it necessary to resort to legal proceedings to enforce any requirement of the Factory and Workshop Act.

Home Work.—There are 337 Domestic Workshops registered, these were visited as in former years.

In compliance with Section 107 of the Factory and Workshop Act, and the Order issued relative to Home-workers, the Local Authority received during the year 20 lists of out-workers from employers. These lists contained the names of 206 home-workers and 24 contractors.

The addresses given were inspected, and notices were served in 10 instances for cleansing and limewashing.

Bakehouses.—At my request, the Chief Inspector, Mr. White, has written the portion of the Report dealing with bakehouses. It will be seen that a considerable amount of work has been carried out during the year in connection with these, especially as regards underground bakehouses. While Northampton cannot yet be said to have ideal bakehouses, yet I believe the standard aimed at is improving, and it will not be for want of pressure from this department as far as our powers extend, if defects remain.

Mr. White has mentioned several changes in the direction of more drastic powers which he would like to see made in the law dealing with bakehouses. I agree with his views in the matter, though I fear the time is yet distant when machinery will be substituted universally for manual labour.

There are 71 bakehouses on the register.

BAKEHOUSES. —*Report by Mr. White.*

To the Medical Officer of Health.

The sanitary condition of Bakehouses in this Borough may generally be regarded as being fairly satisfactory.

However, there are a few that justify special comment—I refer to those in the oldest parts of the town which were undoubtedly erected when the principles of hygiene that are in practice to-day were still looming ahead in the distance.

The worst features about those bakehouses to which my remarks apply are, the approach, situation, and surroundings. Those situated in closely confined yards are of necessity debarred from the requisite amount of air and light desirable for the thorough wholesomeness of the premises and businesses carried on ; but despite the insurmountable difficulties mentioned, successful efforts have been made, and are still being pursued, by the officers of the Health Department to raise the sanitary status of the bakehouses in our town to the highest pedestal permissible by legislative power.

The manifest improvements derived from systematic inspection during the year are as follows :—

1. Abolition of drain openings inside bakehouses.
2. Relaying of floors to facilitate easy cleansing.
3. Cleansing and whitewashing of the interiors, and apartments used as flour stores.
4. Abolition of bell-traps to drain openings of the yard.
5. Provision of flushing cisterns to closets, and removal of every source of contamination in the immediate vicinity of the bakehouse likely to prove deleterious to the business carried on.

The first legislative measure affecting bakehouses came into operation during the year 1863, and the duty of enforcing the provisions of the Act devolved on the Local Authority. The passing of the Factory and Workshop Act 1878 repealed the Bakehouse Act and placed the supervision exclusively under the control of the Inspector of Factories.

The Factory and Workshop Act was amended in 1883, and by its provision the control of retail Bakehouses was re-transferred to the Local Authority.

The law at present relating to Bakehouses is incorporated in the Factory and Workshop Act 1901, and the provisions of the Act in respect to retail Bakehouses is enforced by the Local Authority through the medium of the Medical Officer of Health.

I do not think that there can be two opinions about the present Act falling short of what should be aimed at ; even the Master Bakers' Association were dissatisfied with the minimum amount of air space fixed for a worker in a bakehouse, working under certain conditions, and as the proportion of cubic space to each person was not raised, that influential association caused a communication to be sent to the Home Secretary on the matter. The result was that a Statutory Order was issued on December 30th, 1903, extending the amount of cubic space for each person employed. The Order came into operation on Jan. 1st, 1904, and the provisions are as follows :—

> " With regard to sub-section 1 of Section 3 of the Factory and Work-
> " shops Acts 1901 the proportion of cubic space to each person is
> " modified :—
>
> 1. " As regards 'Underground Bakehouses' by substituting 500 cubic feet " of space to every person for 250 feet of space to every person.
>
> 2. " As regards Bakehouses (other than such as are underground) where " work is carried on at night by artificial light other than electric " light, by substituting in respect of the period between 9 in the evening " and 6 in the succeeding morning 400 cubic feet of air space to every " person for 250 cubic feet of space to every person."

Fortunately there is very little need for the operation of this Order in Northampton.

Reform, however, is much needed in other directions, in connection with the Bakehouse, and it is to be hoped that in the near future legislation will establish the following requirements in amending the present law.

1. The Licensing of all Bakehouses.

2. Placing of "Factory Bakehouses" under the supervision of the Medical Officer of Health of the District.

3. Power to Local Authority to frame by-laws to regulate the *construction* of Bakehouses, *i.e.* walls, floors, ceiling, ventilation, and lighting.

   Management.—Periodic cleansing of floors, utensils, &c., placing all troughs on castors, and prohibition of coke and coal storage in the Bakehouse.

4. Substitution of machinery for manual labour in the manufacture of bread.

Until similar provisions are enforced for the betterment of old bakeries, all endeavours to modernise generally must fail.

However, I am pleased to say that many bakers conduct their businesses in the Borough with the most scrupulous cleanliness ; and it may be said that there are some who conform to up-to-date requirements, yet I consider that the present condition of the retail Bakehouses warrants stringent legislative interference.

UNDERGROUND BAKEHOUSES. — The provision of the Factory and Workshop Act 1901, affecting Underground Bakehouses came into operation on the first day of January, 1904, in accordance with the notice given in the Act.

The measure sets forth that an Underground Bakehouse shall not be occupied after this year unless a certificate of fitness is granted by the District Council. The following is an extract of the Act :—

> "An Underground Bakehouse shall not be occupied that was not so "occupied before the passing of the Act.
>
> "An Underground Bakehouse shall mean any bakehouse, or baking-"room so situated that the surface of the floor is more than 3 feet "below the surface of the foot-way of the adjoining street.
>
> "An Underground Bakehouse shall not be certified as suitable unless "the District Council is satisfied that it is suitable as regards construc-"tion, light, ventilation, and in other respects."

At the passing of the Act two underground bakehouses existed in the Borough. The initiative was taken by the Medical Officer of Health early in the year, in order to give the occupiers ample time to make the necessary alterations to meet the requirements of the Act.

The writer visited both bakehouses in company with the Medical Officer of Health to make a preliminary inspection of their sanitary condition. Subsequently he made a general sanitary survey of the bakehouses, including the testing of the drains and sanitary arrangements of the remainder of the premises, and reported the result, with plans and specifications of suggested alterations.

In one instance the underground bakehouse is in connection with a restaurant kitchen, and the proprietor enjoys the reputation of being one of the best caterers in the Midlands.

With reference to the management of this underground business, I am pleased to relate that the manner in which it is conducted reaches a high standard of excellence in regard to cleanliness, but unfortunately for the occupier, a close examination of the sanitary condition resulted in a contradiction of the hygienic aspect; it was found that extensive alterations were necessary, including the entire reconstruction of the drains.

The latter has since been executed to my satisfaction, whilst the remainder of the necessary alteration, I believe, meets with the approval of the Medical Officer of Health and on his report has been approved of by the Local Authority.

Concerning the second case, the underground bakehouse is used exclusively for the manufacture of bread; I may say that there is no analogy existing between this and the bakehouse mentioned in the first case.

This bakehouse is situated 11 feet below the surface of the yard paving, and access is gained by means of a step-ladder—17 steps—the approach being from a doorway opening directly in a confined and narrow yard.

As stated in my special report, all the well known concomitants of evil were found to exist.

The following is a brief extract :—

"The walls are constructed of stone, they are damp, and in a state of "decay, and there is evidence of sewage percolation from the house "drains, which are defective. In a dark corner of this underground "bakehouse there is a drain opening in the floor, untrapped, which "discharges into a cesspool under the floor of the bakehouse; upon "the removal of the "slab cover" of the cesspool the stench emitted "was exceedingly bad, and somewhat prevented me from taking full "particulars of the receptacle; the untrapped drain in connection "with the cess-pool is acting as an outlet ventilator."

"On descending the staircase of the stoke-hole, in direct communica-"tion with the bakehouse, one finds one self plunged in a stifling "atmosphere, and although baking had ceased at 7 a.m. on the "morning of my visit, the thermometer registered 108 Fah. at noon.

"As business operations are carried on during the night I "decided to pay an early morning visit, this I did, at 6-50 a.m., just as "the last batch of bread was about to be taken from the oven. I found "the air of the bakehouse vitiated, probably from many causes, for "instance:—active contamination by the gas jets, products of respi-"ration, sulphurous fumes generated by the furnace, and from ground "air sucked from damp walls and floor.

"No special provision is made for lighting and ventilation, and "both are exceedingly bad."

Needless to say I gave immediate directions for the abolition of both drain and cess-pool in the bakehouse, and the work was executed without delay.

Under the circumstances it was impossible for the Local Authority to certify this dark, damp, unventilated, and soil-polluted cellar as *suitable* for a bakehouse.

The Local Authority, on the advice of their Medical Officer of Health promptly communicated with the tenant (who is also lessee) on the matter, pointing out the numerous alterations required to convert the place into a sanitary bakehouse, which would have resulted in a considerable expenditure; even then the place would have remained an underground bakehouse.

In view of the facts, the tenant, after due consideration, decided to cease occupying the place as a bakehouse, and in my opinion it was a very wise course to pursue, considering that the bakehouse was devoid of a single redeeming feature; moreover this underground place was never constructed or intended originally for the manufacture of bread. Thus by the operation of the new Act referred to, the Borough is freed from a most undesirable Bakery.

In conclusion I may say that the drainage and structural part of the sanitary arrangements of the remainder of the premises, including the residential portion, were reconstructed under my supervision.

FRANK WHITE,

Inspector of Nuisances.

OFFENSIVE TRADES.—Among the trades specifically mentioned as offensive by the Public Health Acts, is that of tripe boiler. During the year, a tripe boiler was compelled to change his premises, and apparently from ignorance he continued operations in the new premises without notifying the local Authority. On the matter being brought to my notice, I inspected the premises and came to the conclusion that they were unsuitable for the purpose, and I reported to that effect to the Council. The proprietor was directed either to put the premises in order or to obtain a more suitable place. He endeavoured to do so, but finding that his trade was falling off, he finally gave up the business of tripe boiling altogether.

An application was received during the year for a knacker's license within the borough. I am glad to say this was refused by the Council. It is difficult to carry on such a business without causing offence to those who live in the neighbourhood, and it is highly undesirable to have within the limits of the borough a place where meat unfit for human consumption can be, however innocently, stored.

NEW BUILDINGS.—The Borough Surveyor has kindly supplied me with the following information:—

Plans were deposited during 1903 for

New Houses	181
Sunday School	1
Factories	3
New Streets	6
Warehouses	4
Workshops	5
Lodging House	1
Stables	9
Cowsheds	2
Temporary Buildings	5
Alterations to existing Buildings ...	93
TOTAL ...	310

DRAIN TESTING.—In the following houses the hydraulic or the smoke test was applied to test the efficiency of the drainage system.

Moore street, Nos. 10, 12, 14, 16, 66, 68, 70, 72, 74, 76.
Kingsley terrace, Nos. 6, 4, 5.
Milton street, No. 91.
Oliver street, No. 72.
Byron street, No. 51.
Shelley street, Nos. 80, 82, 76, 78.
Harborough road, Nos. 4, 6.
" Cock " Inn, Kingsthorpe.
Ashburnham road, Nos. 13, 47.
Kingsley Park terrace, Nos. 82, 84.
Manor road, Kingsthorpe, Nos. 55, 57, 59.
St. Andrew's school.
St. Matthew's school.
Kingsthorpe school (Infants and mixed departments).
Semilong road, Nos. 10, 49.
Bailiff street, No. 114.
Sandhill road, No. 13.
Nursing Insuitute, Barrack road.
Gurney terrace, No. 10.
St. Paul's school.
St. Sepulchre's school.
St. James' school.
Marriott street, No. 21.
Colwyn road, Nos. 11, 15.
Langham place, No. 25.
Royal terrace, No. 6.
Adelaide terrace, No. 1.
St. Liz street No. 30.
St. James' road, No. 123.
Upper mounts, No. 45.
Newland, No. 12.
Victoria promenade, No. 19.
Guildhall road, Nos. 44, 46, 48, 50, 52, 54, 56.
Mount gardens, Nos. 9, 10.
Castilian terrace, No. 6.
The Parade, No. 6.

Princess street (" Glenroy ').
Castilian street, No. 2.
St. Giles' square (shop).
Derngate, No. 36.
St. Giles' schools.
St. Peter's schools.
St. Luke's schools.
St. Katherine's schools.
St. Mary's (Mounts), schools.
All Saints' schools.
Gold street, No. 41.
Horsemarket, No. 19.
Regent square (Vicarage).
Spencer parade, No. 9.
Bridge street, Nos. 46, 48.
St. Giles' terrace, No. 2.
Bostock avenue, No. 38.
Market street, No. 134.
Great Russell street, Nos. 55, 4, 6, 8, 10, 61.
Clare street, No. 14.
York road, No. 42.
Chapel place, No. 8.
Guildhall road, Nos. 8, 10, 12, 14.
Hood street, No. 23.
Hunter street, No. 37.
St. Michael's road, Nos. 42, 95, 69.
Vernon terrace schools.
Lower Thrift street, " New Town Arms " Inn.
Victoria road, No. 39.
East street, No. 6.
" Abbotsford," Villa, Wellingboro' road.
Poole street, Nos. 22, 24, 26, 28.
Kingsthorpe road, Victoria Nurses' Home.
Abington street, No. 26.
St. Edmund's schools.
Abington square, No. 16.
St. Mary's schools.
Cyril street, No. 65.
Somerset street, No. 13.

Perry street, No. 104.
Turner street, No. 51.
Lutterworth road, No. 124.
York road, No. 25.
Ethel street, No. 58.

RECONSTRUCTION OF DRAINS.—Defects were found in the drainage systems of the following houses; these were rectified by reconstruction of the drains under the supervision of the health department.

Moore street, Nos. 18, 20, 22, 24, 26, 28, 30, 32, 34, 66, 68, 70, 72, 74, 76.
Harborough road, Nos. 2, 4, 6.
Shelley street, Nos. 76, 78, 80, 82.
Kingsley Park terrace, Nos. 82, 84.
Upper Priory street, Nos. 21, 23.
Grafton street, Nos. 48, 30.
Knightley road, No. 21.
Cartwright road, Nos. 4, 5, 6, 7.
Lorne road, Nos. 82, 84.
Ebenezer house, Kingsthorpe road.
Bailiff street, No. 114.
Pine street, Nos. 1, 3, 5, 7, 9, 11, 13, 15, 17, 19.
Royal terrace, No. 6.
Alliston gardens, Nos. 26, 28.
Woodbine Tavern, the Mounts.
Gladstone terrace, Nos. 28, 30, 32, 34.
Barrack road, Nos. 44, 45, 46.
Louise road, Nos. 16, 18.
Leicester street, Nos. 43, 45.
Gurney terrace, No. 9.
Upper Mounts, No. 45.
Bullhead lane, No. 18.
Sheep street, Nos. 35, 37, 61, 81, 83.
Newland, Oddfellows Hall, 8, 10, 14, 63.
Albert street, Nos. 13, 15, 17, 19.
St. Andrew's street. No. 51.
Castilian terrace, No. 6.
The Parade, No. 6.

Hazelwood road, No. 34.
Weston row, Nos. 1, 2, 3.
Park street, Nos. 4, 26.
Lady's lane, Nos. 4, 6.
St. Peter's terrace, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
Kingswell street, Nos. 24, 25, 26, 27, 28, and workshop.
Tanner street, Nos. 20, 21, 23, 25, 27, 29.
St. Mary's street, workshop.
Green lane, "Black Swan."
St. Peter's street, No. 24.
St. Peter's street, Court 1, Nos. 1, 2, 3.
Albion place, No. 23.
Bridge street, Nos. 171a, 173, and workshop, 100.
Victoria street, Nos. 28, 40.
Augustine street, No. 5.
Castilian street, No. 2.
St. Giles' terrace, No. 2.
Derngate, No. 36.
Moat street, Nos. 7, 9, 11, 13.
Abington street, No. 67.
Guildhall road, No. 42.
Fitzroy street, Nos. 24, 26, 28, 30, 32, 34.
Earl street, No. 90.
St. Matthew's Parade, No. 23.
Guildhall road, Franklin's Hotel.
Chapel gardens, Nos. 6, 7, 8, 9, 10.
Hood street, No. 23.
Great Russell street, Nos. 4, 6, 8, 10, 61, 130.
,, ,, ,, The Town Arms Inn.
Lower Thrift street, Nos. 70, 80.
Wellingboro' road, Nos. 150, 152, 182, 184.
St. Edmund's road, Nos. 1, 3, 15, 21,
East street, No. 6.
Gray street, Nos. 17, 19.
Kettering road, Police Station.
The Drapery, Nos. 36, 38, 40.
Abington street, No. 26.
The Mounts, The Black Boy Inn.
Mounts, No. 57.

Spencer road, No. 13.
Abington square, No. 16.
Ivy road, No. 28.
Market street, Nos. 88, 90, 92, 94, 96, 98, 100, 102.

HOUSE TO HOUSE INSPECTION.—It is part of a Sanitary Inspector's duties to seek for nuisances, and not merely to deal with those brought to his notice by complaints. In pursuance of this, the houses in the streets and passages here mentioned were visited. Any defects found were remedied.

	HOUSES.
Manor road, Kingsthorpe	32
High street, ,, ...	59
Lincoln street, ,, ...	48
Washington street	58
Derby place, Kingsthorpe	13
Well yard, ,, ...	10
Carlton place	12
Garfield street	9
Harborough road	32
Kingswell road	21
Bank cottages, Kingsthorpe	9
Vicarage lane, ,, ...	15
Sunnyside, ,, ...	12
Yards, High street, ,, ...	10
Hope's place, ,, ...	6
Welford road	10
Priory terrace	8
Harding terrace	39
Brook street	48
Alpha street	18
Hampton street	48
Uppingham street	46
Northcote street	80
Lower Hester street	78
Ambush street	58
Palmerston terrace	6

Gordon street	81
Fetter street	11
Summer's terrace	7
Herbert street	41
Johnson's buildings	8
Mount gardens	12
Horseshoe street	14
Park street	33
Johnson's row	8
Melbourne street	50
Poole street	49
East street (commenced during 1902) ...	17
Austin street ,, ,, ...	16
Market street	18
Brunswick street	17
Great Russell street	12
Stockley street	11
Chapel gardens	10
Artizan road	10
Vigo crescent	5
TOTAL ...	1215

OVERCROWDING.—Overcrowding is a nuisance under the Public Health Acts. It was found to exist in the undermentioned dwelling-houses. Notices were issued, and the matter rectified as required in each case.

18, Manor road, Kingsthorpe.
44, High street, ,,
179, Harborough road.
20, Semilong road, S.
14, Tanner street.
2, Court 7, Bridge street.
14, Cromwell street.
29, Alcombe road.
7, Cloutsham street.
134, Market street.

SLAUGHTER HOUSES.—There are 64 of these on the register. All have been regularly inspected during the year, and any defects found, remedied.

FOOD INSPECTION.—The following articles ascertained to be unfit for food were voluntarily surrendered to the officials of the Health department and destroyed.

	CWT.	QRS.	LBS.
Beef—5 carcases	24	3	0
Sheep—2 ,, ...	1	2	0
Sheeps' plucks—3	0	0	26
Lamb's pluck—1	0	0	9
Mutton	0	0	6
Liver	0	3	6
Pork products	6	0	15
Haddock—15 boxes	16	0	0
Herrings—2 ,, ...	0	2	4
Fish	8	0	19
Codfish	0	1	12
Rabbits—16			
Tomatoes—40 boxes			
Apples—17 boxes			

In addition, two seizures of meat unfit for consumption were made, in both cases by Mr. White, who requested me to see the carcases.

A justice condemned the meat in conformity with the statute, and both were destroyed.

Mr. White reports—"In the first instance the owner brought the carcase of a pig from a district in the county to the cattle market in the borough, where he endeavoured to conceal it in a cart until he could find a sale for it; with that object in view, several butchers were invited to see the carcase, but fortunately, a police officer on duty in the market (Sergeant Watts) came into possession of it through information received. My attention was called by a telephonic communication. An examination of the carcase showed that the animal had suffered from consumption, it was in an emaciated condition, and there were five swellings on the hind quarter which contained pus. The carcase weighed 28 lbs.

Legal proceedings were taken against the offender, with the result that a conviction was obtained, and a fine of £5 0s. 0d. and £1 1s. 6d. costs was imposed."

In the second case a carcase of beef was seized at the public slaughter-house.

Mr. White reports—"I visited these premises on a Sunday, and examined the carcase of a heifer which I found hanging there dressed, as though intended for human food. I found that the pleura had been stripped from both sides, and although the viscera were missing there was sufficient evidence to prove that the animal had suffered from generalised tubercular disease.

Later in the day I visited in company with the Medical Officer of Health, and acting on his advice as in the previous case, I sought the decision of a justice, who ordered the carcase to be destroyed.

The animal was the property of Welsh cattle-dealer, and but for an accident, it would not have been slaughtered in this town, as it was, it was slaughtered without the knowledge or permission of the owner."

I may state in reference to the above case, that there appears to have been no reason for suspecting the existence of tuberculosis in the animal during life. The carcase was not emaciated, nor were there any external signs of the disease. It was therefore unnecessary to proceed against the owner, who appears to have been a victim of misfortune through no fault of his own.

With regard to the general question of the sale of unsound meat, it is difficult to see how the traffic can be stamped out, so long as highly-seasoned foods in the shape of polonies and ready-cooked sausages are popular with the poorer classes. These articles of diet furnish an unscrupulous butcher with the means of getting rid of meat which was originally diseased, or which, through lapse of time, has begun to decompose. In the finely-minced and highly-seasoned condition in which meat is met with in these articles, it seems impossible to detect unsoundness.

FOOD AND DRUGS ACTS.

Summary of Articles analysed under the Food and Drugs Acts, and numbers adulterated during 1903.

	NUMBER OF SAMPLES PURCHASED.	GENUINE.	ADULTERATED.
New Milk	105	88	17
Skim Milk	5	4	1
Separated Milk	1	1	0
Butter	31	30	1 very slightly.
Cheese	10	10	0
Tea	4	4	0
Sugar	3	3	0
Vinegar	3	3	0
Mustard	2	2	0
Arrowroot	2	2	0
Condensed Milk	2	2	0
Cider	2	2	0
Lime Juice	2	0	2 with Salicylic Acid.
Baking Powder	1	1	0
Pepper	1	1	0
Flour	1	1	0
Cocoa	1	1	0
Honey	1	1	0
Cod Liver Oil	2	2	0
Self-raising Flour	1	1	0
Pickles	1	1	0
Lard	1	1	0
Margarine	1	1	0
Treacle	1	1	0
Coffee	2	2	0
Ground Rice	1	1	0
Beer	1	1	0
Stout	1	1	0
Liquid Extract of Ergot	1	1	0
Tincture of Belladonna	1	1	0
Tincture of Digitalis	1	1	0

Tincture of Iodine	1	1	0
Tincture of Opium	1	1	0
Sweet Spirit of Nitre	1	1	0
Cream of Tartar	1	1	0
Olive Oil	1	1	0
Brandy	1	1	0
Whiskey	1	1	0
Gin	1	1	0
Rum	1	1	0
Ginger Beer	1	1	0
Sherry	1	1	0
Port Wine	1	1	0
Compound Tincture of Camphor	1	1	0
Carbolic Powder	1	1	0
Bleaching Powder	1	1	0
Sago	1	1	0
	208	187	21

Pecentage of adulterations, 10·1.

It will be observed that adulteration nowadays is nearly altogether confined to milk, the coarse forms of adulteration of sugar, coffee, etc., which obtained in the past are extinct so far as I can judge in Northampton, if they ever existed here. It is to be hoped that the continual pressure on milk vendors to secure pure milk will at last have its effect.

The percentage of adulterations in 1902 was 14·3, so that 1903 shows an improvement.

The adulterations outside milk were in the direction of preservatives, these are dealt with in a special section.

A list follows showing the extent of milk adulterations.

No. of Samples Adulterated.	Extent of Adulteration.	REMARKS.
1	7% of added water	
2	2% ,, ,,	No action taken.
1 (skim).	28% ,, ,,	
1	7% deficiency in fat	
1	13% ,, ,,	
1	3% ,, ,,	Dismissed on payment of costs, 7/6
1	16% ,, ,,	
1	6% ,, ,,	
1	8% ,, ,,	
1	5% ,, ,,	
1	19% ,, ,,	
1	9% ,, ,,	
1	6% ,, ,,	
3	1% ,, ,,	No action taken.
1	1% of added water	No action taken.

Action was taken in all the cases not remarked on in the above list. It seems useless to take action except in cases where there is more than 4 % or 5 % of adulteration. This is unfortunate, as the standard set is a low one and the percentage of adulteration shown is only the percentage of deviation from that standard, the real percentage of adulteration is probably always considerably greater.

During the year legal proceedings were taken against 12 offenders, with the result that 11 were convicted. The total of the penalties inflicted amounted to £26 0s. 0d. inclusive of costs. In one case the offender was fined £2 and 12/6 costs, a small amount considering that it was his third conviction, and he was therefore liable to a fine of one hundred pounds.

List of cases under the Food and Drugs Acts in which proceedings were taken for adulteration, with results, during the year 1903.

SAMPLE.	RESULT OF ANALYSIS.	NO. OF SAMPLE.	RESULT OF PROSECUTION.
New Milk.	Added water 7 %	2	Fined 40/- inclusive.
,, ,,	Abstracted fat 7 %	3	,, ,, ,,
,, ,,	Abstracted fat 13 %	26	,, ,, ,,
,, ,,	Abstracted fat 3 %	33	Dismissed on payment of 7/6 costs.
,, ,,	Abstracted fat 16 %	34	Fined 40/- inclusive.
,, ,,	Abstracted fat 6 %	39	,, ,, ,,
,, ,,	Abstracted fat 8 %	76	,, ,, ,,
,, ,,	Abstracted fat 5 %	80	Third conviction. Fined 40/- and 12/6 costs.
,, ,,	Abstracted fat, 19 %	102	Fined 40/- inclusive.
,, ,,	Abstracted fat 9 %	121	Second conviction. Fined 40/- inclusive.
,, ,,	Abstracted fat 6 %	147	Fined 40/- inclusive.
Skim Milk.	Added water 28 %	201	Fined £5 inclusive.
*New Milk.	Added water 6 %	225	Fined 40/- inclusive.

*Sample purchased in 1902, but proceedings taken in 1903.

FOOD PRESERVATIVES.—The reports of the public analyst show that preservatives, viz : boric acid, or salicylic acid, were added to various articles of food and drink. In the first three cases the amount added was small and though the addition of any chemical substance, at any rate without notice on the label, to any article of food or drink is to be deprecated, yet in the circumstances no action was called for. The case is different with the last two articles for the amount of salicylic acid added was considerable, and in addition the label stated that the lime juice contained no medical substance. It is difficult to say in what amount salicylic acid is injurious, and it is also to be remembered that lime juice cordial is not drunk pure but in small amounts diluted with water. It seemed therefore best to communicate with the vendor and recommend him to remove the statement mentioned from the label, and to obtain lime juice with a much smaller proportion of preservative (if any) added. This was done and the statement has been removed from the label. Further samples of this lime juice will be taken for analysis.

Butter ...	0·3	per cent.		Boric acid.
Cider ...	0·0045	,,	or $\frac{3}{8}$ grain per pint ...	Salicylic acid.
,, ...	0.004	,,	or $\frac{1}{3}$ grain per pint ...	,,
Lime juice	0·10	,,	or 10 grains per pint...	,,
,,	0·05	,,	or 5 grains per pint ...	,,

MILK SUPPLY.—There are 34 cowsheds and 157 milkshops on the register ; these were regularly inspected during the year. Two new cowsheds were constructed during the year, and passed by the Council after the making of certain alterations. A third was entered for registration, it was found to be defective on inspection, and the owner was informed of the alterations which would be required. He did not make the necessary improvements, and consequently the place is not used as a cowshed.

The cowsheds in the town supply only a limited part of the total milk used in Northampton, for the greater part of the supply is drawn from the surrounding country. Improvements are being made in the cowsheds of the town but it is more than probable that the cowsheds outside the municipal boundaries largely preserve their primeval character. It is a great omission from the powers granted to an Urban Sanitary Authority that save where a milk supply is suspected of causing infectious disease it is not possible to send an inspector outside the municipal boundary. It is well known that in most country districts little or no action is taken to bring up cowsheds to a proper standard of cleanliness, and though the district surrounding Northampton may be a model district in this respect, it could do no harm but much good if a cowkeeper were aware that his cowsheds were liable to inspection by an official of the district to which he sends his milk, and that the penalty for insanitary conditions would be exclusion of his milk from that district. Much may be done and doubtless is in some cases done by the rural district council, but save a conscientious regard for their duty there is no spur to them in this work for the milk produced is not consumed in their district.

Meantime it is worth while to consider whether any method can be found for improving the milk supply to a town pending the granting of statutory powers. In this connection the scheme adopted in New York is of interest. This scheme was adopted after a conference between the wholesale milk dealers and the Medical Society of New York. The first point determined was the standard which the milk should reach. It was agreed that the percentage of butter-fat present should be at least 3·5, that the acidity should not exceed 2 per cent., and that the bacteria present should not be over 30,000 per cubic centimetre. These standards compare very favourably with the 3% butter fat standard of England above which milk is not considered to have had its fat abstracted. There is no standard for bacteria here; the number 30,000 may seem large but it is as nothing compared with the millions of bacteria which are found in milk not properly obtained, cooled, and stored. When milk in New York reached the standard the dealers supplying it were entitled to use caps on their milk jars stamped "Certified by the Commission of the Medical Society of the County of New York." At first it was found impossible to reach the standard mentioned, but careful attention to cleanliness of the yard, the cowshed, the cows, especially their udders, and of the milker's hands, with cooling and bottling of the milk in thoroughly clean bottles, at last raised the milk to the standard. Samples had to be sent weekly to the laboratories of the health department for examination. In addition to this a system of "Inspected Milk" was introduced. Here the cowkeeper agreed that his premises should be brought up to a specified standard, that there would be a proper water supply, that the milk would be taken only after certain precautions, that the utensils would always be thoroughly clean, and that the milk would be cooled immediately after milking. He agreed to submit his premises and methods to the inspection of an inspector appointed by the Society when that inspector should wish, and that samples of his milk taken at random should conform to a special standard. The dealer who conformed to all this was entitled to use a cap on his milk bottles stamped "Inspected, Milk Commission, Medical Society, County of New York."

It is clear that milk produced under these conditions, though representing milk as it ought to be, and as I hope it will be when the public mind is properly aroused on the matter, cannot possibly be sold at a price which would compete with milk produced by careless or dishonest cowkeepers. Yet even at the higher price rendered necessary I believe that a market could be found for it, if the medical men in a town would agree to recommend such milk and such milk only. Many people would be only too glad to know where they could get reliable milk for their children. If it were proposed to introduce such a system it is clear that a body possessing a laboratory where the necessary testing could be carried out, would be the only one who could give the necessary certificate. In most towns the only body likely to undertake such work would be the Sanitary Authority.

In a report presented to the Council on Municipal Milk Depots I expressed the opinion that the first necessity was to improve the milk supply, this would cut at the root of milk-caused diseases, and would to a considerable extent render unnecessary the supply of humanised and sterilised milk. I do not wish to be considered in any way an opponent of milk depots for I can well believe that the purest milk would soon spoil stored as it often is in the homes of the poor, but I am convinced that the combination of a good milk supply with personal instruction by Health Visitors should first be tried. Humanised and sterilised milk would still find a place though a much smaller one for its operations, and it should be given only under medical advice. The supply of such a milk would then be considered as part and parcel of the whole question of the treatment of the sick. Assuming that in time the hospitals of a town will be controlled by the municipality and supported out of the rates, milk depots would probably be a department of hospital work.

Inspection of cowsheds where powers exist for this, inspection voluntarily permitted in other cases, analysis, chemical and bacteriological, certification of milk conforming to the required standard, and pushing of this milk by the medical profession and by all those interested in the well being of their fellow creatures and especially of children, are the lines along which we must under present conditions travel if milk supplies are to be improved.

It is true that the ideal may not be reached and that humanised and sterilised milk supplied by a municipality may be a shorter cut to success but the statistics are disappointing and inconclusive. It is noteworthy that the Medical Officer of Health for Battersea in his Annual Report for 1903 states that he does not propose to offer any figures until sufficient material has been collected for a conclusive statement to be made. He relies on the testimony of the medical men of the Borough for the provisional proof of his case. Such caution is entirely commendable but it is disappointing, for the collation of the statistics of the various depots in England might render even now some conclusion possible.

The DISINFECTING STATION.—The number of articles disinfected in each month of the year 1903 was :—

January	355
February	615
March	518
April	783
May	829
June	564
July	474
August	504
September	559
October	701
November	915
December	879
	7696

PROSECUTIONS. :—Apart from prosecutions under the sale of Food and Drugs Acts legal proceedings were taken in three cases :—

PARTICULARS.	DECISION.	FINES.
Exposing diseased meat for sale...	Fined.	£5 and £1 1s. 6d. costs.
Failing to comply with statutory notice under the Public Health Act	Work ordered to be done within 3 weeks. ...	costs.
Six houses unfit for human habitation	Closing orders granted	

COMMON LODGING HOUSES.—The inspector (Mr. Harper) reports :—"During the year weekly visits have been made by me to the above houses for the purposes of inspection, and for the collecting of the weekly returns, and also several midnight visits, by myself, and in company with the Medical Officer of Health.

The houses have been whitewashed at the times stated in the bye-laws, viz.—the first weeks in April and in October. The beds and bedding have been inspected when considered necessary."

Below is appended a statement of the number of lodgers for the year 1903, and also for 1902, showing an increase for 1903 among the casual lodgers of:—

Males	231	Females	493

And among the regular lodgers of:—

Males	114	Females	19

	Casual Lodgers.		Regular Lodgers.	
	MALES.	FEMALES.	MALES.	FEMALES.
1902 ...	12312	2310	3060	240
1903 ...	12543	2803	3174	259

CANAL BOATS.—The Inspector (Mr. Sowerbutts) reports:—"During the year 208 inspections were made of canal boats; infringements were discovered in 13 instances. One boat was registered during the year."

Infringements.	
Incorrectly marked ...	4
No water vessel	2
No certificate	4
Illegal occupation ...	3

Warnings were given in these cases, but the Inspector informs me that it is impossible to serve notices as the boat passes out of the municipal boundaries before the machinery for serving a notice could have time to perform its work.

Summary of Routine Work carried out by the Health Department during the year 1903.

Nuisances reported by the Sanitary Inspectors	2552
Nuisances reported at the Office by residents	138
Nuisances abated	2351
Statutory notices served for the abatement of nuisances ...	1588
Inspection of houses after complaint of nuisance	346
Visits to houses in which infectious illness existed	2430
Inspection of courts and alleys	6
Houses disinfected	543
Drains tested with the Asphyxiator	124
Drains found defective after testing with the Asphyxiator ..	87
Drains tested with water	250
Drains reported choked, and subsequently disinfected and amended	115

Drains re-constructed	188
Drains repaired, and gullies substituted for bell-traps	664
Bath, lavatory, sink, waste pipes disconnected from drains, and altered so as to discharge over gully traps	44
New pans fixed to closets	46
Cesspools abolished, and drainage constructed in connection with sewer	5
In-door soil pipes abolished, and new ones fixed outside	18
Closets supplied with flushing apparatus	31
Houses cleansed and whitewashed	631
Accumulations of manure and offensive refuse removed	41
Animals that were kept so as to be a nuisance removed	60
Overcrowding in houses abated	10
Animals kept in contravention of the bye-laws	15
Slaughter houses, cow-sheds, milk-shops, inspected and found defective in sanitation	76
Dilapidated houses repaired	158
Houses unfit for habitation	10
Yard pavings re-laid and repaired	199
Spoutings repaired and renewed	81
Workshops and factories inspected and found defective in sanitation	116
Prosecutions under the Public Health Acts	2
Premises without a proper supply of water	6
Domestic Workshops inspected and found defective in sanitation	36
Notices served under section 36 of the Public Health Act, 1875	29
Houses supplied with Town water	6
New slops sinks fixed	100
Miscellaneous	162

TABLES

Required by the Local Government Board.

TABLE I.

Vital Statistics of Whole District during 1903, *and previous years.*

COUNTY BOROUGH OF NORTHAMPTON.

Year.	Population estimated to middle of each Year.	Births.		Total Deaths Registered in the District.				Total Deaths in Public Institutions in the District.	Deaths of Non-residents Registered in Public Institutions in the District.	Deaths of Residents Registered in Public Institutions beyond the District	Nett Deaths at all Ages belonging to the District.	
		Number.	Rate. *	Under 1 Year of Age.		At all Ages.					Number.	Rate *
				Number.	Rate per 1,000 Births registered.	Number.	Rate. *					
1	2	3	4	5	6	7	8	9	10	11	12	13
1893	61042	1837	30·0	318	173·1	1158	18·9	174	88	3	1073	17·5
1894	61057	1851	30·3	252	136·1	987	16·1	180	79	3	911	14·9
1895	61072	1926	31·5	281	145·8	1000	16·3	167	87	5	918	15·0
1896	61087	1799	29·4	271	150·6	1066	17·4	174	87	9	988	16·1
1897	61102	1752	28·6	323	184·3	1103	18·0	150	78	17	1042	17·0
1898	61117	1694	27·7	307	181·2	1074	17·5	179	90	11	995	16·2
1899	61132	1671	27·3	253	151·4	1004	16·4	176	95	12	921	15·0
1900	61147	1546	25·2	224	144·8	1041	17·0	199	101	11	951	15·5
Borough extended.												
1901	87021	2345	26·9	334	142·4	1269	14·5	174	62	9	1216	13·9
1902	88206	2272	25·7	301	132·4	1358	15·4	184	75	11	1294	14·7
Averages for years 1893-1902	66398	1869	28·3	296	154·2	1106	16·7	176	84	9	1031	15·6
1903	89960	2194	24·4	301	137·2	1307	14·5	222	88	10	1219	13·5

* Rates in Columns 4, 8, and 13 calculated per 1,000 of estimated population

NOTE.—The deaths to be included in Column 7 of this Table are the whole of those registered during the year as having actually occurred within the district or division. The deaths to be included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and the addition of the number in Column 11.

By the term " Non-residents " is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term " Residents " is meant persons who have been taken out of the district on account of sickness or infirmity, and have died in public institutions elsewhere.

The " Public institutions " to be taken into account for the purposes of these Tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses, and lunatic asylums. A list of the Institutions in respect of the deaths in which corrections have been made should be given on the back of this Table

Area of District in acres (exclusive of area covered by water). ... 3,432

At Census of 1901.
Total population at all ages 87,021
Number of inhabited houses 17,602
Average number of persons per house 4·94

I. Institutions within the District receiving sick and infirm persons from outside the District.	II. Institutions outside the District receiving sick and infirm persons from the District.	III. Other Institutions, the deaths in which have been distributed among the several localities in the District.
The Northampton General Hospital. The Northampton Workhouse. St. Andrew's Hospital for the Insane.	The Northampton Borough Hospital for Infectious Diseases.	St Peter's Hospital, London, (one case.)

Is the Union Workhouse within the District? Yes.

TABLE

Vital Statistics of separate Localities

COUNTY BOROUGH

Names of Localities.	Whole District.				St. Giles'.				All Saints'.			
Year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
	a.	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*
1893	61042	1837	1073	318								
1894 ...	61057	1851	911	252								
1895	61072	1926	918	281								
1896 ...	61087	1799	988	271								
1897 ...	61102	1752	1042	323								
1898 ...	61117	1694	995	307								
1899 ..	61132	1671	921	253								
1900 ..	61147	1546	951	224								
Boro' extended 1901 ...	87021	2345	1216	334	52900	1281	759	178	8817		132	34
1902 ..	88206	2272	1294	301	53165	1274	838	177	8611		136	35
Averages of Years 1893 to 1902	66398	1869	1031	296	53032	1278	798	177	8714		134	34
1903 ...	89960	2194	1219	301	53347	1189	760	166	8405		123	34

NOTES.—*(a)* The separate localities adopted for this Table should be areas of which the populations are obtainable from the census returns, such as wards, parishes or groups of parishes, or registration sub-districts. Block 1 may, if desired, be used for the whole district: and blocks 2, 3, &c., for the several localities. In small districts without recognised divisions of known population this Table need not be filled up.

(b) Deaths of residents occurring in public institutions beyond the district are to be included in sub-columns *c* of this Table, and those of non-residents registered in public institutions in the district excluded. (See note on Table I. as to meaning of terms "resident" and "non-resident.")

II.

in 1903 and previous years.
OF NORTHAMPTON.

Kingsthorpe.				St. James'.				Far Cotton.			
Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year	Births registered.	Deaths at all Ages.	Deaths under 1 year.
a.	*b.*	*c.*	*d.*	*a.*	*b*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*
14099		181	63	7119		80	35	4086	137	64	24
14739		167	61	7415		93	21	4276	122	60	7
14419		174	62	7267		86	28	4181	130	62	15
15379		194	56	8248		92	28	4581	129	50	17

(*c*) Deaths of residents occurring in public institutions, whether within or without the district, are to be allotted to the respective localities according to the addresses of the deceased.

(*d*) Care should be taken that the gross totals of the several columns in this Table respectively equal the corresponding totals for the whole districts in Tables I. and IV.: thus, the totals of sub-columns *a*, *b*, and *c* should agree with the figures for the year in the columns 2, 3, and 12, respectively, of Table I.: the gross total of the sub-columns *c* should agree with the total of column 2 in Table IV., and the gross total of sub-columns *d* with the total of column 3 in table IV.

TABLE

COUNTY BOROUGH

Cases of Infectious Disease

Notifiable Disease.	Cases notified in Whole District						
	At all Ages.	At Age—Years					
		Under 1	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.
Small-pox	37	......	1	12	7	15	2
Cholera	......	......	......	......	......	......	......
Diphtheria	27	......	10	0	3	4	......
Membranous Croup ...	12	1	10	1	......	......	......
Erysipelas	138	4	7	15	19	87	6
Scarlet Fever	662	11	216	379	35	21	......
Typhus Fever	......	......	......	......	......	......	......
Enteric Fever	25	......	1	8	5	11	......
Relapsing Fever ...	......	......	......	......	......	......	......
Continued Fever ...	......	......	......	......	......	......	......
Puerperal Fever ...	5	......	......	......	1	4	......
Plague	......	......	......	......	......	......	......
Totals	906	16	245	425	70	142	8

NOTES.—The localities adopted for this table should be the same as those in Tables II. and IV.

State in space below the name of the isolation hospital, if any, to which residents in the district, suffering from infectious disease are usually sent. Mark (H) the locality in which it is situated, or if not within the district, state where it is situated, and in what district. Mark (W) the locality in which a workhouse is situated.

H. Isolation Hospital—The Borough Hospital, Kingsthorpe, in the district of the Brixworth Rural Sanitary Authority.

W. Workhouse—St. Giles.

III.

OF NORTHAMPTON.

notified during the year 1903.

Total Cases notified in each locality.					No. of Cases removed to Hospital from each locality.				
1 St. Giles'	2 All Saints'.	3 Kingsthorpe.	4 St. James'.	5 Far Cotton.	1 St. Giles'	2 All Saints'	3 Kingsthorpe.	4 St. James'.	5 Far Cotton,
25	7	4	1	......	25	7	4	1	......
......	......	......	......	......	......	... ..	......	......	......
13	3	7	4	......	1	1	......	1	......
3	2	2	2	3	......	......	......	......	......
81	12	14	21	10	......	......	......	......	......
457	19	71	102	13	282	11	35	61	9
......	......	......	......	......	......	......	......	......	......
21	3	1	......	......	6	1	......	......	...
......	......	......	......	......	......	......	......	......	......
......	......	......	......	......	......	......	......	......	......
3	2	......	......	......	......	...	......	......	......
......	......	......	......	......	......	.....	......	......	......
603	48	99	130	26	314	20	39	63	9

TABLE IV.

COUNTY BOROUGH OF NORTHAMPTON.

Causes of, and Ages at, Death during Year 1903.

Causes of Death.	Deaths in or belonging to whole District at subjoined Ages.							Deaths in or belonging to Localities (At all Ages).					Total Deaths in Public Institutions in the District.
	All Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	St. Giles.	All Saints'.	Kingsthorpe.	St. James,'	Far Cotton.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	10	4	5	1	...	...	...	4	...	5	...	1	...
Scarlet Fever	24	1	8	15	...	...	...	16	1	3	1	3	9
Whooping Cough	32	14	18	...	...	...	...	13	5	10	2	2	...
Diphtheria & Membranous Croup ...	18	1	15	1	...	1	...	6	3	7	2	...	3
Croup	2	1	1	...	...	...	...	1	...	1	...	...	...
Fever { Typhus	...	...	...	...	...	...	...	...	...	...	...	...	...
Fever { Enteric	6	...	...	...	2	4	...	5	1	...	...	...	2
Fever { Other continued	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic Influenza	17	...	...	1	...	10	6	16	1	...	...	...	4
Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhœa. (See notes at back) ...	30	24	6	...	...	...	...	15	4	10	1	...	1

Enteritis. (See notes at back)	23	20	2	1	...	...	..	15	4	1	3	...	...
Puerperal Fever... ditto	2	...	...	...	...	2	...	2	...	...	...	...	...
Erysipelas	6	...	1	...	...	2	3	4	...	2	...	...	1
Other Septic Diseases	3	...	...	3	...	...	...	2	...	...	1	..	3
Phthisis ... ditto	114	...	...	7	30	73	4	80	9	13	10	2	14
Other Tubercular Diseases	42	13	10	7	2	10	...	30	4	4	2	2	12
Cancer, Malignant Disease ditto	86	...	...	...	1	48	37	64	5	13	2	2	30
Bronchitis	110	24	23	1	...	22	40	65	15	10	16	4	7
Pneumonia	101	32	28	5	1	18	17	56	13	18	12	2	15
Pleurisy	2	...	...	...	1	...	1	1	...	1	...	...	...
Other Diseases of Respiratory Organs	...	...	...	...	...	...	...	...	...	...	...	...	...
Alcoholism } Cirrhosis of Liver }	12	...	..	...	...	9	3	9	2	...	1	...	1
Venereal Diseases	...	...	...	...	...	...	...	...	...	...	...	...	...
Premature Birth	52	52	...	...	...	...	...	26	3	16	2	5	1
Diseases and Accidents of Parturition	10	...	...	...	2	8	...	7	...	2	...	1	3
Heart Diseases	95	1	1	3	7	47	36	61	8	12	6	6	16
Accidents	16	2	1	2	2	7	2	11	1	3	1	...	10
Suicides	16	...	...	...	2	12	2	9	3	2	1	1	3
Paralysis	13	...	...	...	...	4	9	12	1	...	...	...	2
Marasmus	51	45	6	...	...	...	...	32	2	9	6	2	7
Senile Decay	70	...	...	...	...	3	67	42	8	11	6	3	12
Apoplexy	59	...	...	...	...	26	33	32	8	7	7	5	2
Diabetes	8	...	...	2	...	2	4	5	1	1	1	...	3
Kidney Disease	16	1	...	...	1	9	5	13	1	2	...	2	4
Convulsions	37	29	8	...	...	...	...	21	3	6	4	3	2
All other Causes	136	37	6	6	9	42	36	85	17	25	5	4	55
All Causes	1219	301	139	55	60	359	305	760	123	194	92	50	222

NOTES ON TABLES I., II., III., AND IV.

NOTES.—(*a*) In this table all deaths of "Residents" occurring in public institutions, whether within or without the district, are to be included with the other deaths in the columns for the several age groups (columns 2-8). They are also, in columns 9-15, to be included among the deaths in their respective "Localities" according to the previous addresses of the deceased as given by the Registrars. "Deaths of Non-residents" occurring in public institutions in the district are in like manner to be excluded from columns 2-8 and 9-15 of this Table.

(*b*) *See* notes on Table I. as to the meaning of "Residents" and "Non-residents," and as to the "Public Institutions," to be taken into account for the purposes of these tables. The "Localities" should be the same as those in Tables II. and III.

(*c*) All deaths occurring in public institutions situated within the district, whether of "Residents" or of "Non-residents" are in addition to being dealt with as in note (*a*), to be entered in the last column of this Table. The total number in this column should equal the figures for the year in column 9, Table I.

(*d*) The total deaths in the several "Localities" in columns 9-15 of this Table should equal those for the year in the same localities in table II., sub-columns *c*. The total deaths at all ages in column 2 of this Table should equal the gross total of columns 9-15, and the figures for the year in column 12 of Table I.

(*e*) Under the heading of "Diarrhœa" are to be included deaths certified as from diarrhœa alone, or in combination with some other cause of ill-defined nature; and also deaths certified as from

Epidemic enteritis;
Zymotic enteritis;
Epidemic diarrhœa; summer diarrhœa;
Dysentery and dysenteric diarrhœa;
Choleraic diarrhœa, cholera, cholera nostras (in the absence of Asiatic cholera).

Under the heading of "Enteritis" are to be included those certified as from Gastro-enteritis, Muco-enteritis, and Gastric catarrh, unless from information obtained by enquiry from the certifying practitioner or otherwise, the Medical Officer of Health should have reason for including such deaths, especially those of infants, under the specific term "Diarrhœa."

Under the headings of "Cancer" "Phthisis" and "Puerperal Fever" should be included all registered deaths from causes comprised within these general terms.

Deaths from diarrhœa secondary to some other well-defined disease should be included under the latter.

* * *

In recording the facts under the various headings of Tables I., II., III., and IV., attention has been given to the notes on the Tables.

JAMES BEATTY, M.D.,

Medical Officer of Health.

April 30th, 1904.

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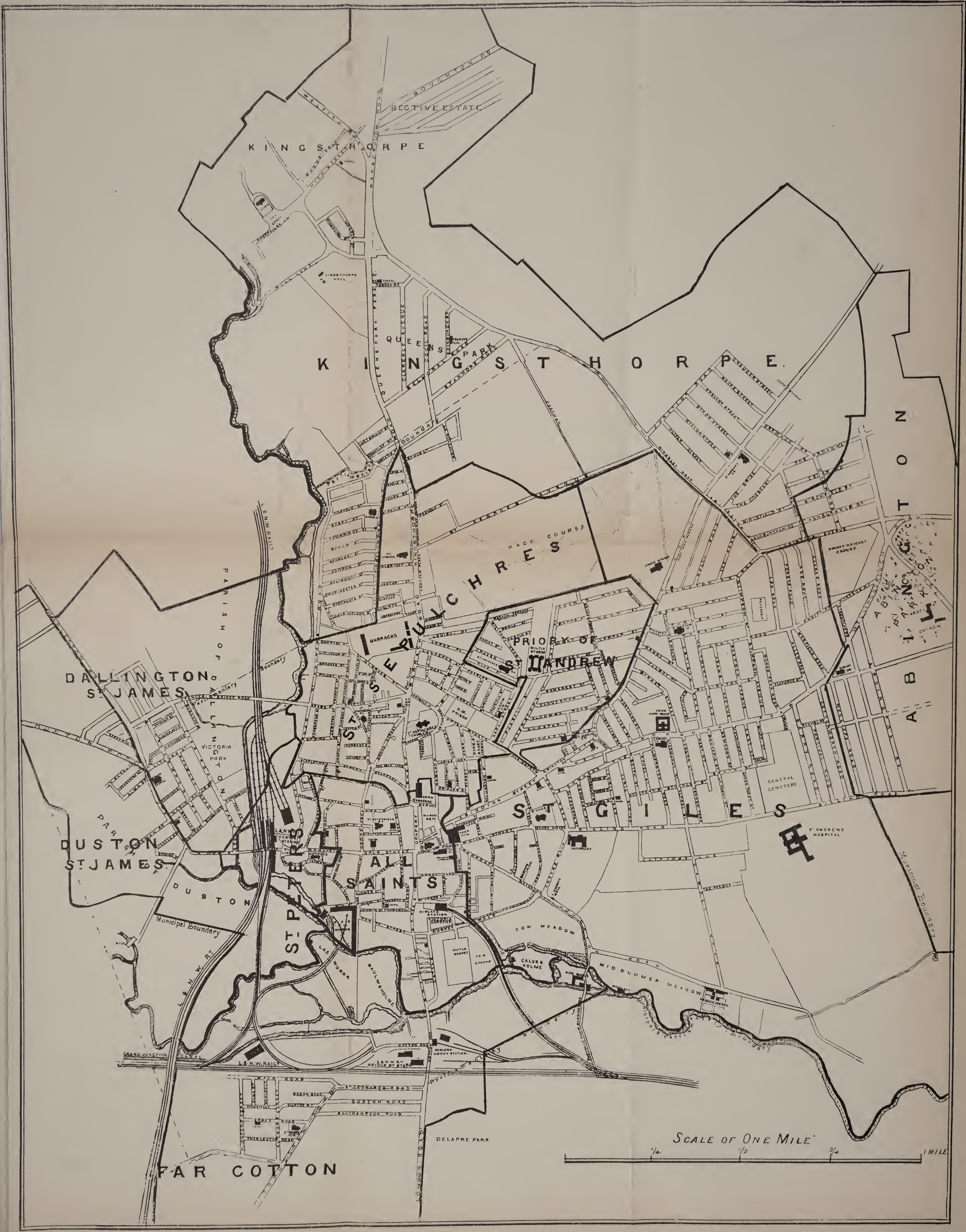
KINGSTHORPE
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QUEENS PARK
KINGSTHORPE
ABINGTON
RACE COURSE
ST SEPULCHRES
COUNTY CRICKET GROUND
ABINGTON PARK
CHURCH
BARRACKS
PRIORY OF ST ANDREW
MILITIA STORES
DALLINGTON ST JAMES
Parliamentary Boundary
PARISH OF DALLINGTON
VICTORIA PARK
H.M. PRISON
L.&N.W. RAILY
PARISH OF DUSTON
DUSTON ST JAMES
L&N.W. CASTLE STATION
ST PETERS
ALL SAINTS
ST GILES
GENERAL CEMETERY
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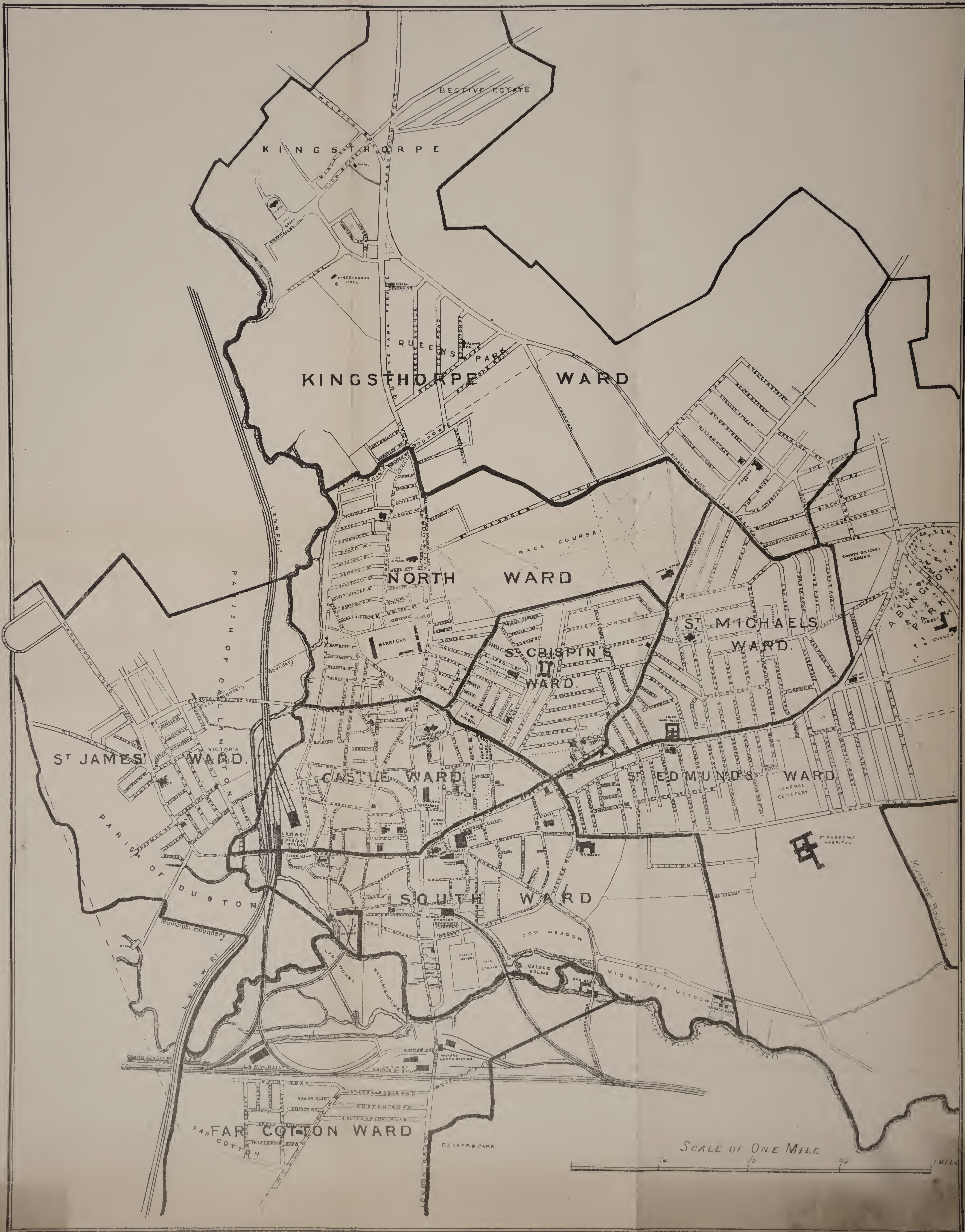
CATTLE MARKET
FAIR GROUND
COW MEADOW
CALVES HOLME
MIDSUMMER MEADOW
L.&N.W. RY
GRAND JUNCTION CANAL
L&N.W. RAILY
MIDLAND GOODS STATION
L&N.W. RY BRIDGE ST STAT.
COTTON END
ST LEONARDS ROAD
DUSTON ROAD
SOUTHAMPTON ROAD
MAIN ROAD
LONDON ROAD
DELAPRE PARK
FAR COTTON
Municipal & Parish Boundary
Municipal Boundary
SCALE OF ONE MILE
1/4
1/2
3/4
1 MILE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NORTH WARD
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ST CRISPIN'S WARD
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